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1973K0110002

KALKHOFF - Instruction manual - Guide d'utilisation - Handleiding - Instrucciones de uso

Kalkhoff
my bike ...

Instruction manual
Guide d'utilisation
Handleiding
Instrucciones de uso

Foreword

Your bicycle was delivered to you fully assembled. In case any bicycle parts are not assembled, please contact your bicycle dealer.

These instructions help you in the
- appropriate,
- safe and
- advantageous

Use of your bicycle.

We assume that users already have general knowledge regarding the handling of bicycles.

Every person who
- uses,
- cleans,
- maintains or
- disposes of this bicycle

must be fully acquainted with the entire contents of this instruction manual.

Layout features

Various elements of this instruction manual are provided with special symbols, which enable you to easily distinguish between normal text,

- lists or
- ➢ actions to be taken or

ⓘ important additional information or particular details regarding the use of the bicycle.

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Safety advice

Read all warnings and notices in this operating manual completely before using the bicycle. Always store the operating manual near to the bicycle so that it is available at all times.
If you pass on or sell your bicycle to others, please also hand out this operating manual to them.

Fundamental safety advice

Personal safety measures

- Always use a suitable bicycle helmet.
- Wear light coloured clothing or clothing with reflective elements, so that other road users can see you.
- Wear shoes with rigid and, as far as possible, non-slip soles.
- Wear tight-fitting trousers or use bicycle clips.
- Always wear suitable protective clothing when riding, such as solid shoes and a bicycle helmet.

Bicycle safety

- Observe the maximum load of the relevant bicycle type, otherwise important operational parts could break or fail.
- Have damaged or bent parts replaced before riding the bicycle again, otherwise important operational parts could fail.
- Observe the maximum load of the carrier. It is marked on the carrier (see chapter “permissible carrier load“, page 44).
- Have maintenance and repairs carried out by a dealer. Comply with maintenance intervals (see page 43).
- If you make any technical changes to your bicycle, you should observe the national traffic regulations and valid standards.
- Electrical parts of your bicycle may only be replaced by type-tested parts.
- During adverse light conditions such as
  - fog
  - rain
  - dusk
  - darkness

  you should only ride with sufficient lighting.

Road traffic safety

- Always obey the valid traffic regulations.
- Never ride hands-free. This can lead to serious accidents.
- Remember that children under eight years of age must ride on the pavement. Children aged eight to ten may ride on the pavement. If children have to cross the road, they must dismount from the bicycle.
- When the road is wet, adjust your riding style accordingly. Ride more slowly and brake earlier, as the braking distance will be noticeably longer.
- Adjust your speed according to the terrain and your ability.
- Don't listen to music via headphones whilst riding your bike.
- Don't use a mobile telephone whilst riding your bike.
- If you ride off-road, use only official cycle paths.
- Always be ready to brake at blind corners and when riding downhill.

Appropriate use as intended

General

Bicycles are intended as a means of transport for single persons. The carrying of an additional person on the bicycle is only permissible within the scope of national regulations. If you wish to transport baggage, the bicycle must be suitably equipped for this purpose. In this case, observe the loading limits for the carriers (see chapter 'Permissible carrier load', page 44).

Not every type of bicycle is suitable for every type of terrain. Bicycles are not designed for extreme strains such as riding over steps or jumping.

The details given in this operating manual are valid for all types of bicycle.
Where details for individual types of bicycle differ, these are marked accordingly.
Observe the individual component manufacturers' operating instructions, which are supplied with your bicycle or are available online. If you still have questions after reading the component manufacturers' documentation, please consult your bicycle dealer.
Appropriate use as intended also means complying with the usage, maintenance and service conditions which are described in this operating manual.
The manufacturer and dealer shall not be liable for any use of the bicycle which goes beyond the intended use.

Trekking bikes / ATBs

These bicycles may be used on public and made roads. They are also suitable for light off-road use.
The manufacturer and dealer shall not be liable for any use of the bicycle which goes beyond the intended use. This particularly applies to non-compliance with safety advice and the resulting damage, for example due to:

- overload or
- improper repair of faults.

City, touring, sport, children's and junior cycles

These bicycles may be used on public and made roads.
The manufacturer and dealer shall not be liable for any use of the bicycle which goes beyond the intended use. This particularly applies to non-compliance with safety advice and the resulting damage, for example due to:

- off-road use,
- overload or
- improper repair of faults.

Mountain bike (MTB)/Cross bike

These bicycles may be used off road. Do not use these bicycles to take part in competitions. These bicycles may not be used on public roads. If you wish to use your bike on a public road, you must comply with national regulations.
The manufacturer and dealer shall not be liable for any use of the bicycle which goes beyond the intended use.
This particularly applies to non-compliance with safety advice and the resulting damage, for example due to:

- use in competitions,
- overload,
- improper repair of faults,
- riding over steps,
- jumps,
- riding through deep water or
- extreme strain outside special MTB-courses.

Racing cycles / fitness bikes
If racing cycles are to be used on public roads, the national regulations must be complied with.
The manufacturer and dealer shall not be liable for any use of the bicycle which goes beyond the intended use. This particularly applies to non-compliance with safety advice and the resulting damage, for example due to:

- off-road use,
- overload,
- improper repair of faults or
- competitions.

Assembling the pedals

Tighten all screws to the specified torque, otherwise the screws could break off and parts may become loose. (see chapter 'Tightening torques of screws, nuts and bolts', page 45).

! If the pedals are placed in position at an angle or screwed in crookedly, the thread in the crank arm may be destroyed.

The left pedal ("L") has a left-hand thread, the right pedal ("R") has a right-hand thread.

Racing cycles or mountain bikes may be delivered without pedals.
If you wish to mount the pedals of your racing cycle or mountain bike yourself, proceed as follows:

➢ Paint both pedal threads with a medium-strength thread sealant (glue).

Thread sealant prevents screws from working loose on their own.
Thread sealant is available from hardware stores.

➢ Screw the left pedal **in an anticlockwise** direction into the left pedal crank.
➢ Screw the right pedal **in a clockwise direction** into the right pedal crank (on the chain side).
➢ Tighten both pedals using a size 15 spanner.

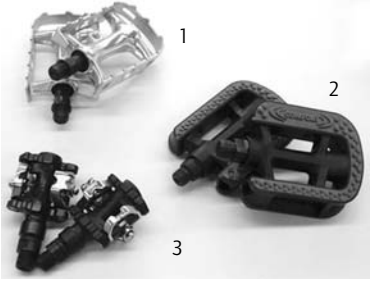
Pedal types

Use MTB, racing and system pedals only with the matching shoes. You might slip off the pedals with other shoes.

The use of MTB or racing pedals may lead to serious falls if the user is not experienced.

If you use system pedals, at first practise fastening and unfastening the shoes to and from the pedals whilst standing still. Never practice in traffic.
Read the pedal and shoe manufacturers' instructions.

1 MTB pedals
2 Touring or sport pedals
3 System pedals



Before each use

Despite taking great care during production and final checking, parts may work loose or their functionality may alter during transport.

➢ For this reason, the following items must be checked before each use:

- tightness of the quick releases,
- tightness of all screws, nuts and pedals,
- adjustment and tightness of suspension parts
- adjustment and function of the brakes
- tightness of pipes and connectors if hydraulic brakes are being used,
- fastening of the saddle support and the handlebar stem,
- minimum insertion depth of the seat post and the handlebar stem,
- lighting function,
- gear shift function,
- proper fixing of the wheels and
- sufficient tyre tread depth and correct tyre pressure.

Use of the quick release

All quick releases must be fastened tightly before riding.
Check that all quick releases are correctly seated if the bicycle has been left unattended for a while.

When tightening the quick release, so much force is required that you will need to use the ball of your hand, otherwise the quick release could loosen itself.

A quick release is made up of two operating elements:

1 Tensioning lever
2 Locking nuts 1

To open the quick release, proceed as follows:
➢ Tilt the tensioning lever, so that the word OPEN is readable.
➢ Open the quick release as far as it will go.
➢ To loosen the quick release, turn the locking nut in an anticlockwise direction.

To close the quick release, proceed as follows:
➢ Adjust the locking tension using the locking nut.
➢ If the quick release is too loose, open it again and turn the locking nut in a clockwise direction.

If the quick release is still too easy to close, repeat the last step.

➢ If the quick release is too difficult to close, turn the locking nut in an anticlockwise direction.

➢ Tilt the tensioning lever away from the OPEN position, so that the word CLOSE is readable.

Adjusting the saddle

The seat position is crucial to your comfort and cycling efficiency.

Do not remove the seat post or the saddle clamp.
The manufacturer accepts no liability for damage or accidents.

Tighten all screws to the specified torque, otherwise the screws could break off and parts may become loose. (see chapter 'Tightening torques of screws, nuts and bolts', page 45).

! You should only carry out work on your bicycle with suitable tools and sufficient knowledge. Have complicated repairs or work related to safety done by a dealer.
Adjust the bicycle saddle and handlebar to suit your requirements.

Determining the correct saddle height

- ➢ Sit on the bicycle saddle.
- ➢ Try to reach the pedal at its lowest position with your heel.

Your knee should be almost completely straight at this point.

- ➢ Place the ball of your foot in the centre of the pedal.

If your knee is now slightly bent, the saddle height is correctly adjusted.

Adjusting the saddle height

Never pull the seat post out of the seat tube beyond the maximum or stop mark or the height of the middle of the top tube, (in the case of bicycle frames without top tube, beyond the middle of the seat brace). The bottom end of the seat post must be at least at the same height as the top tube, otherwise you may injure yourself and damage the seat post.

If the saddle of a mountain bike with full suspension (MTB-Full-Suspension) is adjusted to its lowest point, the seat post may protrude a maximum of 20 mm from the seat tube at the bottom end, otherwise the real wheel rocker arm will collide with the seat post when the damper is compressed.

The minimum insertion depth is marked. If the saddle support has no marking, the minimum insertion depth must be 7.5 cm. In the case of frames with longer seat tubes, which protrude beyond the upper tube, the minimum insertion depth is 10 cm.

Observe the stop mark!

To adjust the saddle height, proceed as follows:

- ➢ Loosen the saddle locking screw by turning it anticlockwise using an allen key or by opening the quick release (see chapter 'Use of the quick release', page 7).
- ➢ Pull the saddle out of the seat tube until the required height is reached.
- ➢ Lock the saddle locking screw by turning it clockwise using an allen key or by closing the quick release.
- ➢ Check once again that the saddle height is correct (see chapter 'Determining the correct saddle height', left).

Saddle locking screw

Quick release

Adjusting the saddle tilt

Adjust your saddle so that it is as level as possible, or slightly tilted to the rear. Determine the most comfortable seating position by making a longer cycling trip.

If necessary, adjust the saddle tilt by proceeding as follows:

- ➢ To loosen the locking screw, turn it in an anticlockwise direction.
- ➢ Tip the saddle until the required tilt is reached.
- ➢ To tighten the locking screw, turn it in a clockwise direction. (for tightening torque, see page 45).

In the case of a saddle with a collar clamp, the locking screw is located at the side. If necessary, adjust the saddle tilt by proceeding as follows:

- ➢ To loosen the locking screw, turn it in an anticlockwise direction. It may be necessary to hold the nut located on the other side using a second spanner.
- ➢ Tip the saddle until the required tilt is reached.
- ➢ To tighten the locking screw, turn it in a clockwise direction. It may be necessary to hold the nut located on the other side using a second spanner (for tightening torque, see page 45).

Suspension seat post

Suspension seat posts compensate for mild shocks and road unevenness. This reduces stress on the spine during cycling.

If the spring elements of the seat post need to be adjusted, consult your dealer.

Adjusting the handlebar

Tighten all screws to the specified torque, otherwise the screws could break off and parts may become loose (see chapter 'Tightening torques of screws, nuts and bolts', page 45).

Determining the correct handlebar height

By altering the handlebar height, you can determine the seating position on the bicycle. The seating position will be changed by a height difference between the handlebar and the saddle.
The lower you adjust the handlebar, the further you will have to lean forward. This results in an increase in the load on wrists, arms and upper body.

The higher you adjust the handlebar, the more upright you will have to sit. This results in an increase of the load on the spine.

Determine the optimum handlebar height for your body height as follows:

- ➢ Sit on the bicycle saddle.
- ➢ If necessary, ask someone to hold the bicycle.
- ➢ Bend forward towards the handlebar until you reach a position which is comfortable for your back.
- ➢ Stretch your arms out towards the handlebar.
- ➢ Note the approximate height of your hands, so that you can adjust the handlebar to this height.

Adjustment of the handlebar height for conventional handlebars

Never pull the handlebar stem out beyond the maximum or stop mark on the stem tube. Insert the handlebar stem to a minimum depth of 65 mm in the steering tube, otherwise the handlebar stem can slip down.

To loosen the stem shaft in the steering tube, proceed as follows:

- ➢ Release the stem spindle in order to loosen the handlebar stem. Turn it two to three turns in an anticlockwise direction using an allen key.
- ➢ Clamp the front wheel between your knees to prevent the bicycle fork from moving when the stem shaft is loosened.
- ➢ Turn the stem shaft backwards and forwards.
- ➢ If this is not possible, tap the stem spindle lightly with a plastic hammer from above until the locking screw inside the steering tube loosens itself.

Having loosened the stem shaft, proceed as follows:

- ➢ Push the handlebar stem to the required height.
- ➢ Adjust the handlebar so that the handlebar stem is at a right-angle to the bicycle frame.
- ➢ To tighten the stem shaft again, turn the stem spindle with an allen key in a clockwise direction (for tightening torque, see page 45).

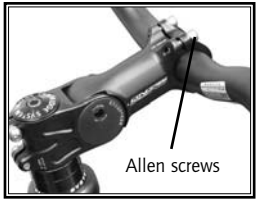
Adjustment of the A-Head system handlebar height

Stems such as the one illustrated here are called A-Head stems. If this system is fitted, it is compulsory to have the handlebar height adjusted by a dealer.

Aligning the handlebar to the front wheel

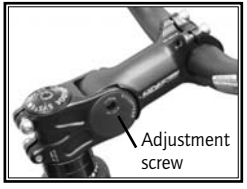
To align the handlebar to the front wheel, proceed as follows:

- ➢ Loosen the allen screw at the front side of the stem by turning it in an anticlockwise direction using an allen key.
- ➢ Turn the handlebar to the desired position. Ensure that the handlebar is clamped exactly at the centre of the stem.
- ➢ Tighten the allen screw in a clockwise direction using an allen key (for tightening torque, see page 45).



Adjustment of the handlebar height for an adjustable handlebar stem

On some types of handlebar stems, the tilt of the handlebar is variable.
The locking screws for the handlebar tilt adjustment can be found at the side of the joint or on the top or the underside of the stem. There are also models with additional retaining catches or adjustment screws.



- ➢ Loosen the locking screw two to three turns in an anticlockwise direction using an allen key.

If you own a model with additional latching gear, proceed as follows:
➢ To loosen the serration of the latching gear, turn the locking screw further in an anticlockwise direction if necessary.

If you own a model with integrated retaining catches, proceed as follows:
➢ Remove the retaining catch screws if necessary.

ⓘ The retaining catch screws are located on the underside of the stem on many stem models.

- ➢ Adjust the handlebar stem to the desired height
- ➢ Tip the handlebar stem to the desired tilt.

To tighten the handlebar stem, proceed as follows:

- ➢ In the case of models with integrated retaining catch, carefully tighten the retaining catch screw in a clockwise direction.
- ➢ The retaining catch must thereby grip the serration. Tighten the locking screw in a clockwise direction using an allen key (for tightening torque, see page 45).

Checking the headset

If the headset is improperly adjusted or tightened too hard, breakage may occur, therefore always consult a dealer.
If you ride with a loose headset, damage may occur to the bearing casing or the forks.

The headset forms the bearing of the bicycle forks in the frame. A properly adjusted headset can be easily turned. However, there should be no play.

Shocks from the road place a great strain on the headset. It can be become loose or misadjusted. Have the play and the ease of movement of the headset checked regularly by a dealer (for intervals, see page 44).

Checking the bottom bracket

Chain sprockets are consumable parts. Their service lifetime depends on various factors such as:

- Maintenance and care,
- type and duration of use and
- the distance travelled.

The crank arms must be seated tightly, otherwise the crank assembly may become damaged.

- ➢ Since the crank arms can become loose, check the tightness of the bottom bracket regularly.
- ➢ To check that the crank arms are seated tightly on the axles, shake them regularly.
- ➢ If any play is found in the crank arms, have the bicycle checked and the arms tightened by a dealer.

Using the gear shifter

Using the multispeed chain gear shifter

This operating manual describes the typical, conventional gear shift components of an MTB, ATB, crossbike or racing cycle. In the case of differing components, refer to the special information or attached manuals. If anything is unclear to you, consult your bicycle dealer in the case of questions regarding assembly, maintenance and operation.

Loose, worn, damaged or incorrectly adjusted gear shift components represent a risk of injury to the rider.
Have the chain gear shifter adjusted by a dealer!

!

- If the chain jumps off the chain sprockets, or
- if abnormal noises are heard, or
- if gear shifting does not work correctly, or
- if the chain guide, derailleur or other gear shift components are loose, damaged or bent, or
- if the chain links are loose or worn, consult your dealer to have repairs carried out.

The bicycle chain may not sit simultaneously on the smallest chain sprocket at the front and the small outer sprocket at the rear, nor may it sit simultaneously on the largest chain sprocket at the front and the large inner sprocket at the rear, otherwise the chain may become disengaged.

Never pedal backwards when shifting gear, otherwise the gear shifter may be damaged. Be careful when making adjustments to the gear shifter.

Due to incorrect adjustments, the chain may jump off the sprocket which may lead to a fall. If you are not sure, have the work done by a dealer.

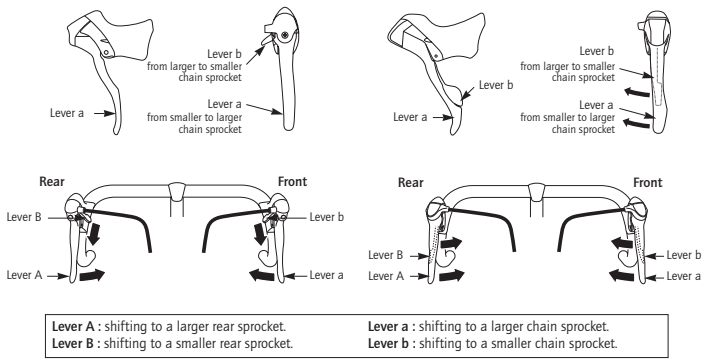
! Do not ride without the spoke protector, otherwise the bicycle chain or the gear shifter mechanism could get between the sprockets and the spokes. Change to the lowest gear (largest rear sprocket) very carefully using the gear shift, otherwise the changer mechanism could come into contact with the spokes and damage them.

Shift lever operation

There are various types of gear shit levers.
The commonest types are described below.

Racing shift lever

The Shimano brake shift lever may exist in two versions.

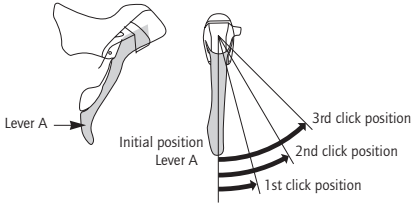


Lever A : shifting to a larger rear sprocket.	**Lever a :** shifting to a larger chain sprocket.
Lever B : shifting to a smaller rear sprocket.	**Lever b :** shifting to a smaller chain sprocket.

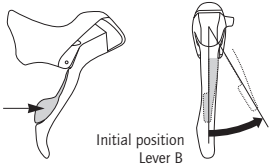
All levers return to their initial positions when released.

Actuating the chain guide lever

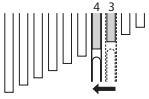
- Lever A: shifting to a larger rear sprocket. Lever A latches in positions 1, 2 and 3.



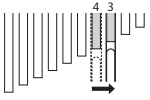
- Lever B: shifting to a smaller rear sprocket. By pressing lever B once, gear is shifted to the next smaller rear sprocket.



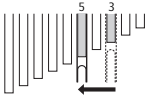
1: Shifting by one gear to the next larger rear sprocket.
Example: Shifting from 3rd to 4th gear.



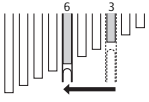
Example: Shifting from 4th to 3rd gear.



2: Shifting by two gears to a larger rear sprocket.
Example: Shifting from 3rd to 5th gear.



3: Shifting by three gears to a larger rear sprocket.
Example: Shifting from 3rd to 6th gear.

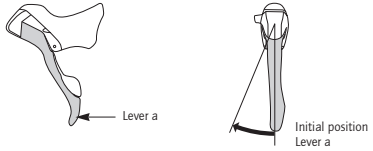


Operating advice

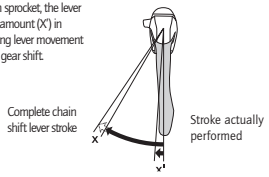
Lever B moves with lever A when it is actuated; however, the exertion of pressure on lever B must be avoided. Correspondingly, the exertion of pressure on lever A must be avoided when actuating lever B. The simultaneous actuation of both levers results in no gear shift.

Actuating the derailleur lever (standard)

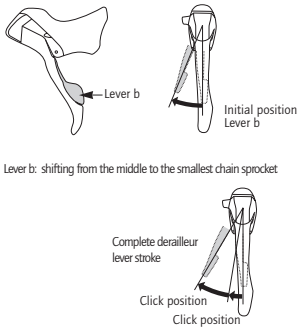
Lever a: shifting to a larger chain sprocket.



If the lever movement does not produce a complete change of chain sprocket, the lever must be moved again by amount (X') in order to execute the missing lever movement distance (X) and thus the gear shift.



Lever b: shifting from the middle to the smallest chain sprocket

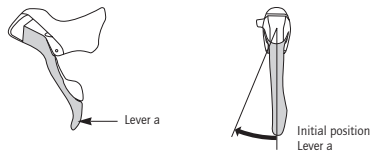


Lever 'b' moves with lever 'a' when it is actuated. However, the exertion of pressure on lever 'b' must be avoided. Correspondingly, the exertion of pressure on lever 'a' must be avoided when actuating lever 'b'. The simultaneous actuation of both levers results in no gear shift.

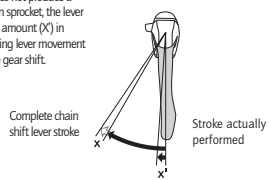
Actuating the derailleur lever with trimming (noise minimisation) optional

Shift procedure

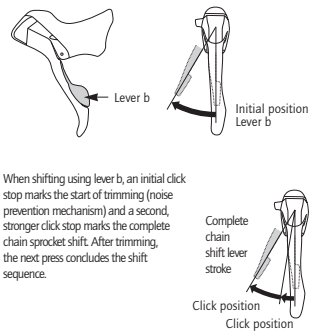
Lever a: shifting to a larger chain sprocket.



If the lever movement does not produce a complete change of chain sprocket, the lever must be moved again by amount (X') in order to execute the missing lever movement distance (X) and thus the gear shift.

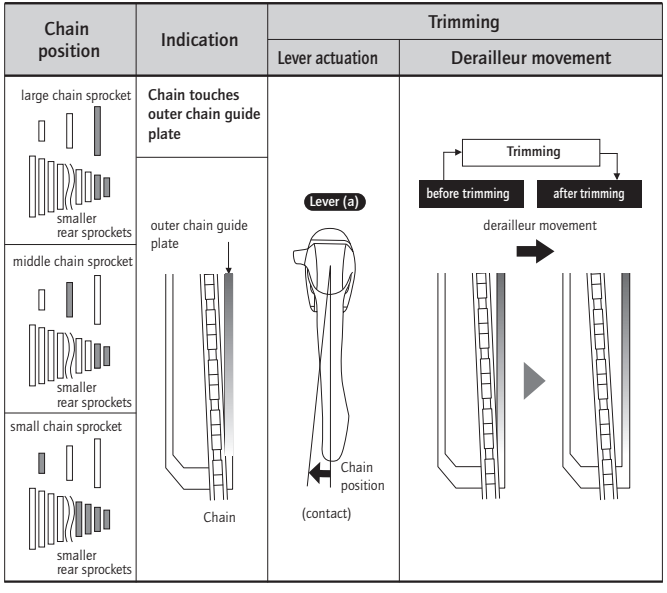


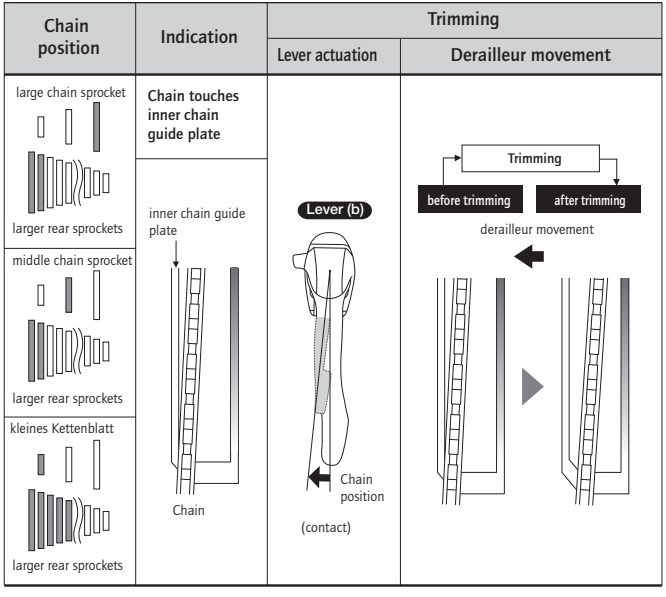
Lever b: shifting from the largest to the middle chain sprocket.



When shifting using lever b, an initial click stop marks the start of trimming (noise prevention mechanism) and a second, stronger click stop marks the complete chain sprocket shift. After trimming, the next press concludes the shift sequence.

Trimming (noise minimisation)
Depending on the chain position after completion of shifting, the chain may rub against the outer or inner chain guide plate and cause noises. In this case, press lever 'a' or lever 'b' lightly in order to move the derailleur slightly so that it no longer contacts the chain.
This adjustment is called 'trimming'. Trimming is possible when the chain is located on the large, middle or small chain sprocket. If noises occur, trim to one of the following positions in order to completely eliminate the noises.





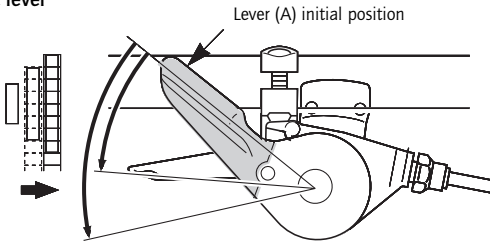
Standard shift lever

Both levers (A) and (B) return to their initial positions after actuation. The crank must always be turned when actuating a lever.

Actuating the derailleur shift lever

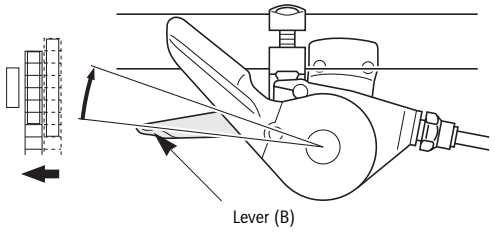
Shifting from a small to a larger chain sprocket

By pressing lever (A) once, the chain is shifted from a small to a larger chain sprocket.



Shifting from a large to a smaller chain sprocket

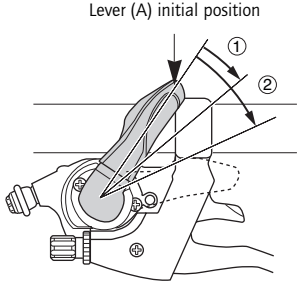
By pressing lever (B) once, the chain is shifted from a large to a smaller chain sprocket.



Actuating the standard chain guide lever

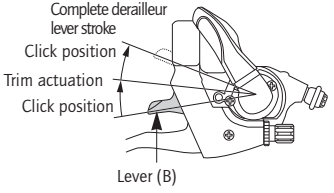
Shifting from a small to a larger rear sprocket.

To shift by one gear only, push the lever (A) to position (1). To shift by two gears, push the gear shift lever to position 2. It is possible in this way to shift by a maximum of three gears.

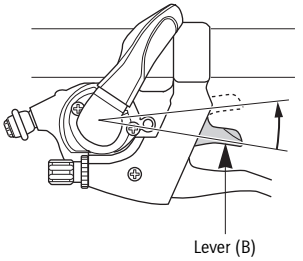


Shifting from a large to a smaller rear sprocket

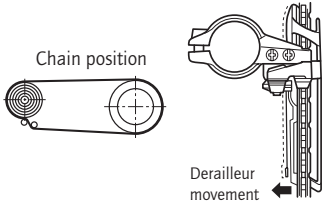
Pressing once shifts to a smaller rear sprocket.



If the chain is on the largest chain sprocket and the largest rear sprocket, the chain rubs against the derailleur, which is noticeable from the characteristic noises. The derailleur can be move slightly to the inside by lightly pressing lever (B) (to the click position) so that there are no more noises.

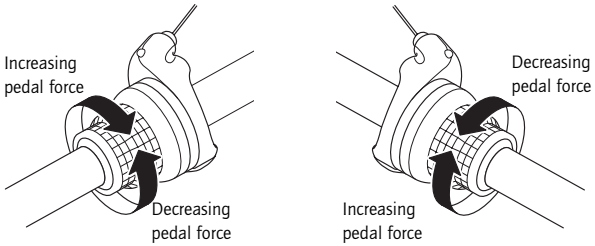


When shifting using lever (B), an initial click stop marks the start of trimming (noise prevention mechanism) and a second click stop marks the complete chain sprocket shift. After trimming is completed, the noise prevention system does not click any more, so that only the click positions for shifting the rear sprokkets remain.



Twistgrips

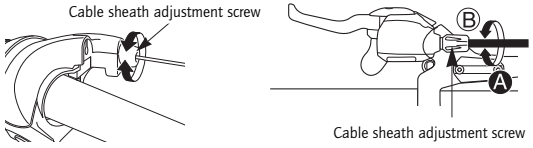
To shift by one gear only, turn the twistgrip forwards or backwards by one position.



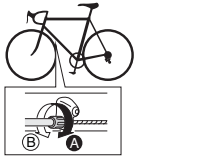
Derailleur

> **!** Have the chain gear shifter maintained, adjusted or replaced by a cycle dealer!

Fine adjustment of the derailleur / troubleshooting



Position of the cable sheath adjustment screw
This adjustment screw may be located on the frame on racing cycles.



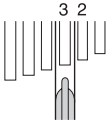
If the chain falls on the crank arm side:	➢ Tighten the adjustment screw for the largest gear to the right (approx. 1/4 turn).
If shifting from the middle to the large chain sprocket is difficult:	➢ Loosen off the adjustment screw for the largest gear to the left (approx. 1/4 turn).
If shifting from the middle to the small chain sprocket is difficult:	➢ Loosen off the adjustment screw for the smallest gear to the left (approx. 1/4 turn).
If the chain rubs against the inner chain guide when set to the largest chain sprocket:	➢ Tighten the adjustment screw for the largest gear to the right (approx. 1/8 turn).
If the chain rubs against the outer chain guide when set to the largest chain sprocket:	➢ Loosen off the adjustment screw for the largest gear to the left (approx. 1/8 turn).
If the middle chain sprocket is missed out when shifting from the largest chain sprocket:	➢ Loosen off the cable sheath adjustment screw to the left (1 to 2 turns).
If the chain is on the middle chain sprocket and rubs against the inner chain guide when shifting to the largest rear sprocket:	➢ Tighten the cable sheath adjustment screw to the right (1 to 2 turns).
If the chain falls on the bottom bracket side:	➢ Tighten the adjustment screw for the smallest gear to the right (approx. 1/2 turn).
If lever actuation is difficult when shifting from the middle to the largest chain sprocket:	➢ Loosen off the adjustment screw for the largest gear to the left (approx. 1/4 turn).

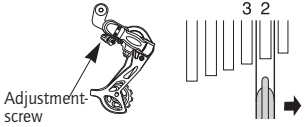
Chain guide

! Have the chain gear shifter maintained, adjusted or replaced by a cycle dealer!

Fine adjustment of the chain guide
Actuate the lever to shift the chain from the smallest rear sprocket to the second rear sprocket. Then take up the slack and turn the crank arm.

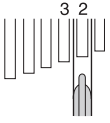
If the chain jumps to the third rear sprocket:

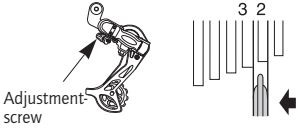




! Tighten the adjustment screw to the right until the chain jumps back to the second rear sprocket.

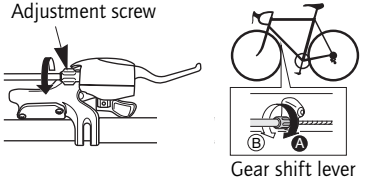
If there are no noises:



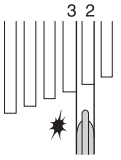


Loosen off the screw to the left until the chain rubs against the third rear sprocket.

Note:
The adjustment screw may also be located on the gear shift lever or on the frame.



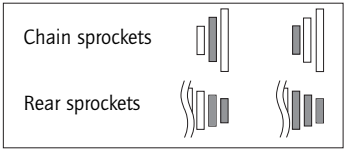
Optimum adjustment
When the slack is taken up by the gear shift lever, the chain should rub against the third rear sprocket and make a noise if the adjustment is optimal.
Release the gear shift lever in second gear and turn the crank arm.



If the chain rubs against the third rear sprocket, the adjustment screw must be turned a little to the right so that no rubbing noises occur.

For trouble-free SIS function, all power transmitting parts must be lubricated.

Note
If the chain is in the position shown, it may rub against the chain sprockets or derailleur and cause noise. In this case, you can shift the chain to the next or next-but-one larger rear sprocket.



Cleaning:
- Use only a neutral cleaning agent for the chain. The use of alkaline or acidic cleaning agents, such as rust remover, can damage the chain and lead to operational faults.
- The chain sprockets and rear sprockets should be washed at periodic intervals using a neutral cleaning agent and subsequently lubricated again.
- The chain shifter should be cleaned at periodic intervals and the moving parts (mechanism and rollers) must be lubricated.

Using the multispeed hub gear shifter with and without a coaster brake

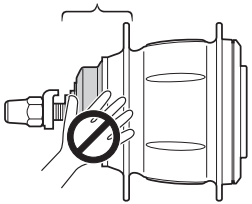
This operating manual describes the typical, conventional gear shift components of a city or trekking bike with a hub gear. In the case of differing components, refer to the special information or attached manuals.
If anything is unclear to you, consult your bicycle dealer in the case of questions regarding assembly, maintenance and operation.

When mounting the hub in the frame, the correct safety washers must be inserted on both sides and the hub nuts must be tightened to the prescribed torque. If the safety washers are inserted on one side only, or if the hub nuts are not correctly tightened, a safety washer can fall out. This could lead to the hub axle or the gear shift arm rotating and pulling the handlebar to one side via the gear shift cable, which could cause a serious accident.

Brake hub:

Avoid constantly actuating the coaster brake on long downhill sections, as the interior brake parts can get very hot, leading to a reduction in braking power. Be sure to use the second brake (front wheel brake) alternately on long, steep downhill sections, so that the rear wheel brake can cool down.
The brake drum can get very hot after prolonged braking; the brakes should therefore not be touched for at least 30 minutes after riding.

Brake drum



The gears can be shifted whilst pedalling. In rare cases noise may be caused in the hub by the interior gear wheels and retaining catches, which is normal when shifting gear.
If the wheel is hard to turn, the brake shoes must be replaced or the hub lubricated. This must be carried out in a specialist workshop.
If the chain jumps off the sprockets when riding, it should first be re-tensioned. If the adjustment range is exhausted, the sprockets and the chain must be replaced.

The coaster brake can be controlled very precisely. The full braking power is achieved after a certain running-in period.

In order to get used to the brakes, operate the brake lever carefully at first to acquire a feel for the coaster brake's deceleration.

If the bicycle is left standing for a longer period, a rust film may form in the brake drum, increasing the braking effect. Therefore, when beginning your journey, brake gently a few times to wear off the rust film. This will help to avoid the brakes suddenly locking.

If the hub gets too hot, this can lead to a loss of lubricant and thus to a stronger braking effect. In this case, the brakes must be checked in a specialist workshop.

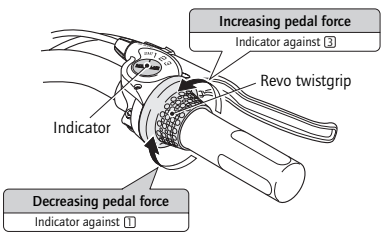
Shimano hub gear shifter

Shimano 3-speed shift lever

There are two different types of gear shift elements.

Twistgrip (Revo)

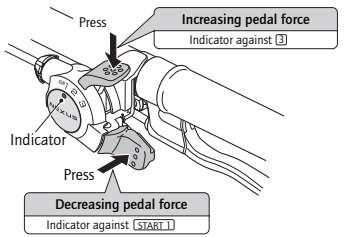
Turn the Revo twistgrip to shift to all 3 gears.



1 ... Starting off/riding on sand or over uneven ground/riding uphill/ carrying heavy luggage/ riding against the wind/ riding with lights switched on
2 ... Riding on level roads
3 ... Riding at high speed

Button gear shift (Rapidrise)

Press the button to shift gear.

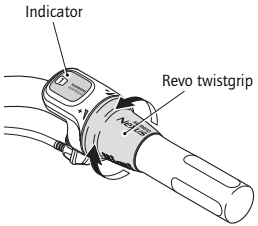


START 1 ... Starting off/riding on sand or over uneven ground/riding uphill/ carrying heavy luggage/ riding against the wind/ riding with lights switched on
2 ..... Riding on level roads
3 ..... Riding at high speed

Shimano 7/8-speed shift lever

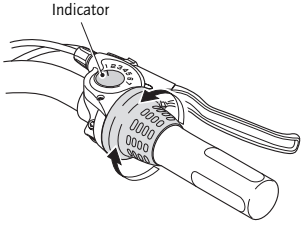
Turn the twistgrip to shift to all 8 (7) gears.

Increasing pedal force ➢ Indicator against 8 (7)



Decreasing pedal force ➢ Indicator against 1

Increasing pedal force ➢ Indicator against 8 (7)



Decreasing pedal force ➢ Indicator against 1

Dismounting and mounting the rear wheel with Shimano hub

Removing the rear wheel

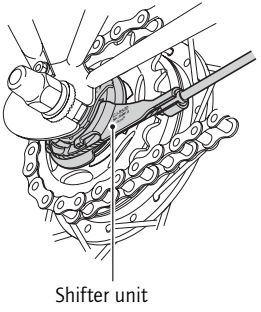
Removing the Shimano 3-speed hub gear shifter unit

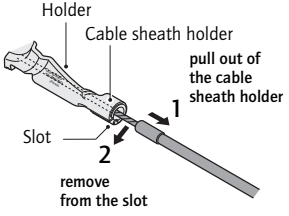
➢ Remove the shifter unit fixing screw. Remove the shifter unit from the hub. Pull the shifter rod out of the hub axle.

Removing the Shimano 7/8-speed hub gear shifter unit

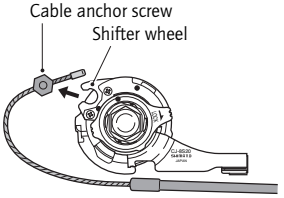
➢ Remove the cable from the shifter unit in order to remove the rear wheel from the frame. Before doing this, set the gear shift lever to 1st gear.

➢ Pull the cable sheath out of the cable sheath holder and remove the cable from the slot in the holder.



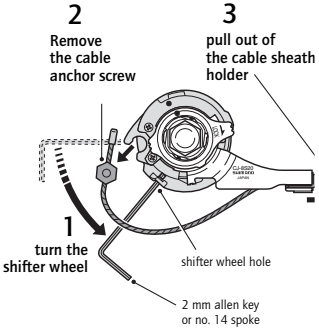


➢ Remove the cable anchor screw from the shifter wheel.



➢ If it is difficult to pull the cable sheath out of the holder in the shifter unit, insert a 2 mm allen key in the hole of the shifter wheel and turn the shifter wheel to release the cable.

➢ After this, first remove the cable anchor screw from the shifter wheel before pulling the cable sheath out of the cable sheath holder.



➢ Loosen and remove the screws from the brake arm.

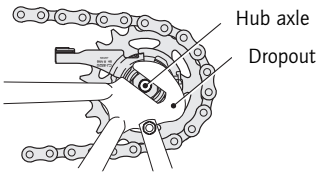
➢ Remove the wheel nuts and place them aside. Remove the safety washers from the wheel axle.

➢ Pull the rear wheel out of the slots in the dropouts.

Refitting the rear wheel

➢ Place the chain on a rear sprocket and position the hub axle in the dropouts.

➢ Attach the safety washers on both sides of the hub axle.



➢ Turn the shifter arm so that the safety washers latch in the slots in the dropouts. In this case, the shifter arm can be mounted almost parallel to the chainstay.

Illustration of 7/8-speed shifter:

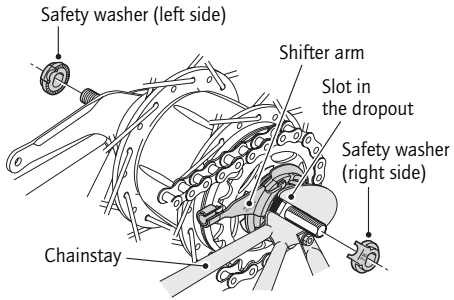
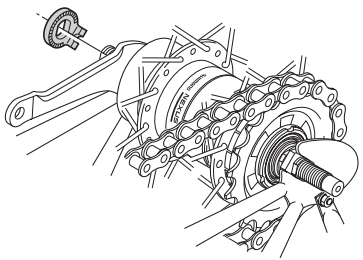
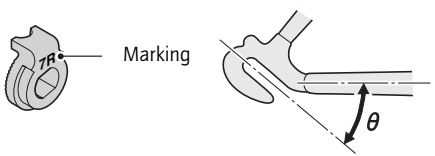


Illustration of 3-speed shifter:



➢ The protruding part must be located on the outer side of the dropout.
➢ Insert the safety washers so that the protrusions latch properly in the dropout slots in front of behind the hub axle.



➢ Tension the chain and fix the wheel to the frame with the cap nuts, tightening torque 30 – 45 Nm.

Illustration of 7/8-speed shifter:

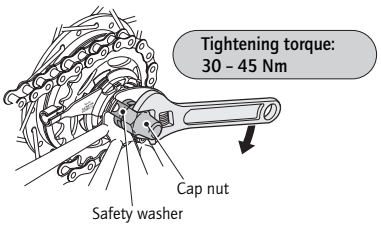
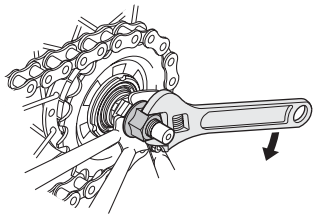
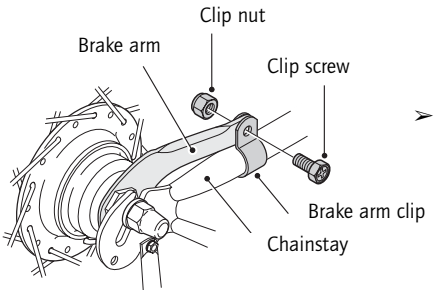


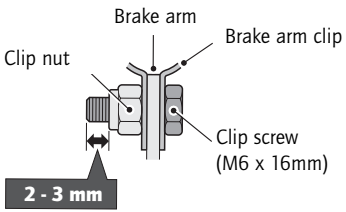
Illustration of 3-speed shifter:





➢ When mounting the brake arm clip, hold the clip nut tight using a 10 mm spanner whilst tightening the clip screw.

➢ After mounting the brake arm clip, check that the clip screw protrudes 2 to 3 mm beyond the clip nut.

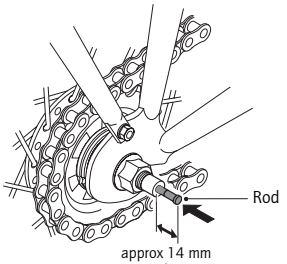


If the clip nut loosens itself from the brake arm or the clip screw or brake arm clip are damaged, the brake arm can rotate on the chainstay. This can cause the handlebar to move suddenly or the wheel to lock, which can lead to a fall with serious injuries.

Mounting the Shimano 3-speed hub gear shifter unit

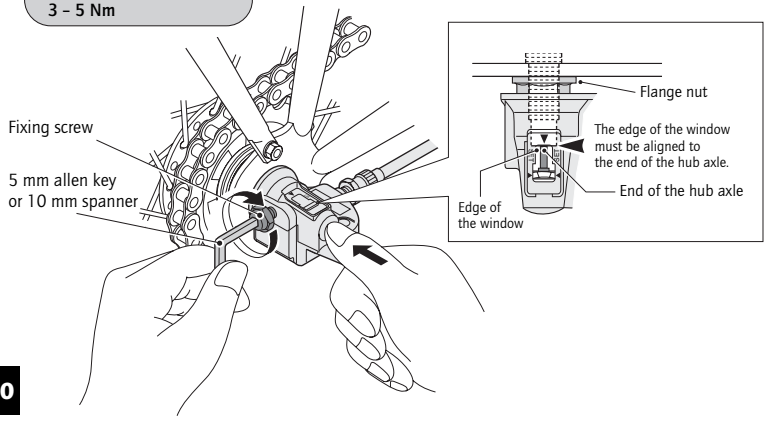
➢ Insert the rod in the hub axle.

➢ Push the angle lever into the hub axle and align the inner lever serration to the flange nut; push the angle lever until it is contacting the hub axle. In this condition, tighten the hub axle fixing screw.



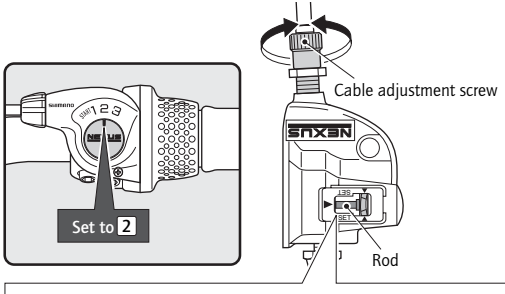
The end of the rod must protrude approx. 14 mm beyond the hub axle.

Tightening torque: 3 – 5 Nm

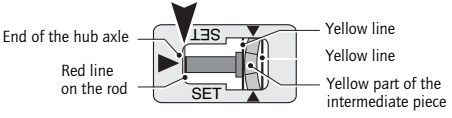

Fixing screw
5 mm allen key or 10 mm spanner
Flange nut
The edge of the window must be aligned to the end of the hub axle.
End of the hub axle
Edge of the window

Adjusting the angle lever – fine adjustment

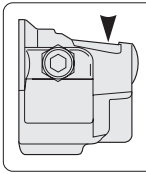
➢ Set the Revo twistgrip to (2).
Turn the cable adjustment screw so that the red line on the rod is aligned to the end of the hub axle.



The red line on the rod and the end of the hub axle must be aligned to one another.

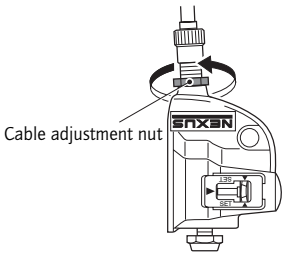


If the red line is not visible, the yellow part of the intermediate piece must be adjusted between the two yellow lines of the window.



Note:
The two yellow lines must be viewed directly from above.

➢ Turn the crank arms and switch the Revo twistgrip two to three times from (3) to (1) and back from (1) to (3) to check the shifting operation.
Set the Revo twistgrip to (2) and check that the red line on the rod is aligned to the end of the hub axle.

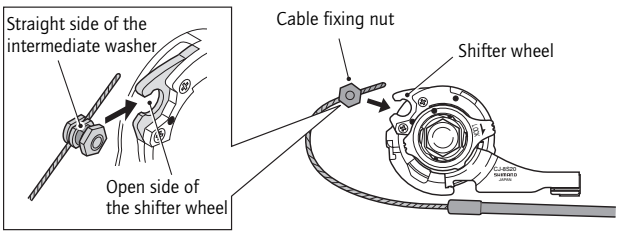


! If the alignment is incorrect, you can perform fine adjustment using the cable adjustment screw.

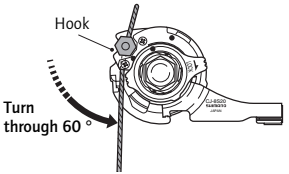
➢ After adjusting the angle lever, tighten the cable adjustment nut to secure the cable adjustment screw.

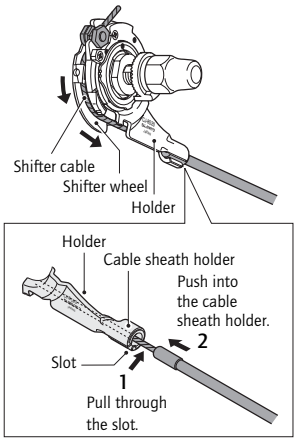
Mounting the Shimano 7/8-speed hub gear shifter unit

➢ Attach the cable to the shifter wheel so that the cable fixing nut is directed outwards towards the dropout and push the straight side of the intermediate washer into the open side of the shifter wheel.



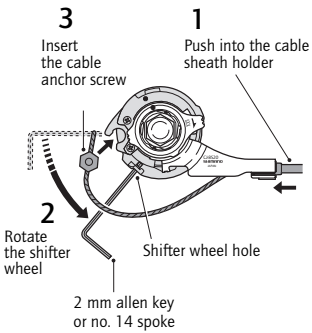
➢ Turn the cable 60° to the right and fix it to the hook.



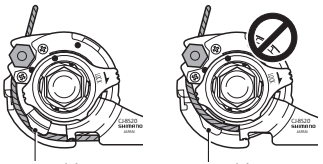


➢ Attach the cable to the shifter wheel as shown in the illustration.
➢ Pull the cable through the slot in the shifter unit holder and push the end of the cable sheath firmly into the cable sheath holder.

➢ If it is easier, first insert the cable sheath in the cable sheath holder, insert a 2 mm allen key in the shifter wheel hole and rotate the shifter wheel in order to fit the cable anchor screw correctly in the open side of the shifter wheel.

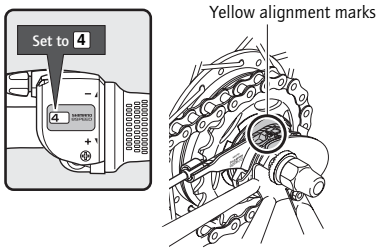


Check that the cable is inserted properly into the shifter wheel guide.

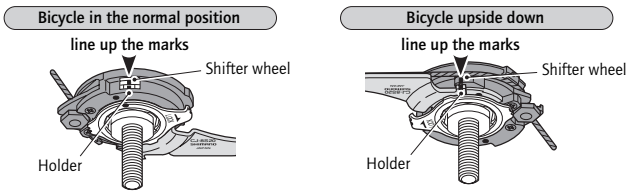


Adjustment of the shifter unit – fine adjustment

➢ Set the twistgrip to 4th gear.



➢ Check that the yellow alignment marks on the holder and the shifter wheel are aligned to one another.
➢ Yellow alignment marks are present in two places on the shifter unit.
➢ Use the line that is easiest to see.



➢ Turn the cable adjustment screw of the gear shift lever to align the alignment marks to one another.
➢ After this, turn the gear shift lever from 4th to 1st gear and back to 4th gear and check that the yellow alignment marks are still aligned to one another

SRAM hub gear shifter

Shifting

- Continue to pedal without force when shifting gear.
- If the desired gear does not engage immediately, stop pedalling briefly.
- Change down in good time before uphill sections.

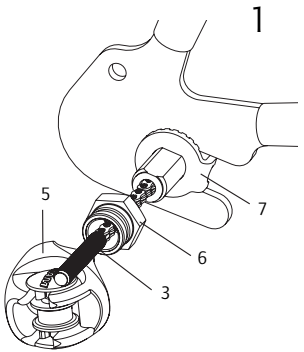
Brakes

- Be sure to use the second brake (front wheel brake) alternately on long, steep downhill sections, so that the rear wheel brake can cool down.

SRAM 3-speed

Removing and refitting the rear wheel

Removal



➢ switch the twist grip to 3rd gear.
➢ Remove the clamping bush (1, fig. 2) from the pulling chain (3) using the pushbutton (2).
➢ Pull off the pulley (5, fig. 1).
➢ Unscrew the axle nut with the cylindrical projection (6) and the axle nut on the other end of the axle and remove the fixing washer(s) (7).
➢ Remove the wheel.

Refitting

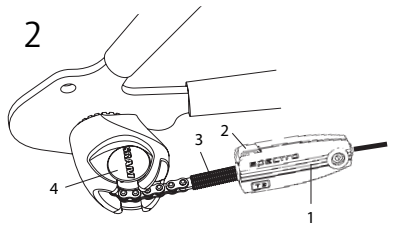
➢ Insert the wheel in the frame.
➢ Fit a 2.5 mm thick fixing washer (7, fig. 1) on the outside on both sides. The serration must lie on the dropout, the holding tab must latch in the dropout. Alternative: 1 x 3.5 mm thick fixing washer on the left end of the axle only.
➢ Mount and tighten the axle nut with the cylindrical projection (6, fig. 1) and the axle nut on the other end of the axle.
➢ 15 mm spanner, tightening torque 30 – 40 Nm.
➢ Feed the pulling chain (3, fig. 1) through the pulley (5).
➢ Push the pulley onto the axle nut (6) until it latches. Rotate the pulley until the round surface (4, fig. 2) is at the top.
➢ Hub shifter adjustment: see page 23

Shifter adjustment

- ➢ Place the shifter lever in gear position '3'. Move the pedal arm to ensure that the gear is engaged.
- ➢ Push the clamping bush (2, fig. 2) onto the pulling chain (3) until the pulling cable is taut. Do not pull the pulling chain out of the pulley (4) during this operation.

Checking

- ➢ Turn the twistgrip to 1st gear whilst moving the pedal arm.
- ➢ Adjustment is too loose: the pulling chain can be pulled further out of the pulley by hand in gear position '1'.
- ➢ Adjustment is too tight: the twistgrip can only be brought into gear position '1' with difficulty.
- ➢ Repeat the adjustment procedure if necessary.



! Improved braking function in 3rd gear.
When braking in 3rd gear, the pulling chain moves approx. one chain link out of the pulley. After braking ceases, the pulling chain returns to the normal position immediately.

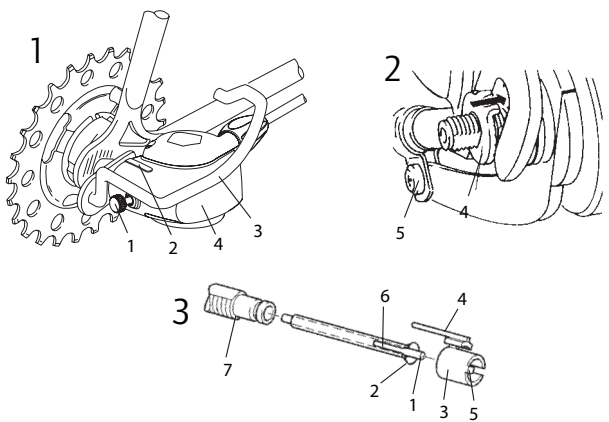
SRAM 5(7)-speed brake gear hub

Removing/refitting the rear wheel
Removal

- ➢ Turn the twistgrip to 2nd gear (1st gear in the case of 7-speed hub)
- ➢ After loosening the knurled screw (1, fig. 1), pull the clickbox off the hub axle.
- ➢ Unlatch the clamping bush (3, fig. 3) and pull it off.
- ➢ Remove the shifter pin/tube (1/2) from the axle bore.

Refitting

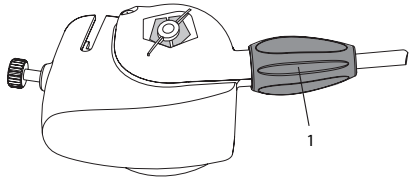
- ➢ Fit a 2.5 mm thick fixing washer (4, fig. 2) on the outside on both sides of the dropout. The serration must lie on the dropout, the tab must latch in the dropout. Alternative: 1 x 3.5 mm thick fixing washer on the left end of the axle only.
- ➢ No additional washers or other axle attachments are allowed on the drive side.
- ➢ Attach the protective bar (3, fig. 1) on the sprocket side.
- ➢ Tightening torque of the axle nuts approx. 35 Nm.
- ➢ Insert the shifter pin (1, fig. 3) in the shifter tube (2) (oil the parts lightly) and insert them into the axle bore as far as they will go.
- ➢ Rotate the slot (6) into an easily visible position.
- ➢ Push the clamping bush (3) with the guide pin (4) in front onto the hub axle – at the same time, feed the interior lug (5) into the slot (6) in the shifter tube until it latches.
- ➢ Turn the clamping bush guide pin to the top.
- ➢ Check: the twistgrip shifter should be in 2nd gear.
- ➢ Push the clickbox (4, fig. 1) onto the hub axle as far as it will go. The red guide pin then sits completely in the groove (2) of the clickbox housing.
- ➢ Tighten the knurled screw (1, fig. 1) by hand.
- ➢ Shifter adjustment: see page 24.



If the clip nut loosens itself from the brake arm or the clip screw or brake arm clip are damaged, the brake arm can rotate on the chainstay. This can cause the handlebar to move suddenly or the wheel to lock, which can lead to a fall with serious injuries.

Shifter adjustment

To adjust the shifter, it is imperative to turn the twistgrip from 4th to 3rd gear (in the case of 7-speed hub: from 5th to 4th gear). Then align the marks in the viewing window using the clickbox adjustment screw (1) Check this adjustment from time to time.



Maintenance / care

- The chain sprockets and rear sprockets should be washed at periodic intervals using a neutral cleaning agent and subsequently lubricated again.
- If the braking effect of the coaster brake is too strong, the brake sleeve must be lubricated with special grease (this should be carried out by a specialist).
- No dot clean gear hubs using water under pressure (strong water jets, high pressure cleaners etc.) - if water penetrates into the hub, it may malfunction.
- Do not use strong cleaning agents. Use only a neutral cleaning agent for the chain. The use of alkaline or acidic cleaning agents, such as rust remover, can damage the chain and lead to operational faults.
- Clean your bicycle more regularly in winter so that road salt cannot cause any damage.
- Clean dirty chains before oiling them. Allow the cleaning agent to work for a short time only, then rinse with water. Only oil the chain when it is completely dry.

Bicycle chain maintenance

Bicycle chains are consumable parts. In the case of hub gear shifters, the chain is worn after about 3000 km, in the case of chain gear shifters after around 2000 km. A worn bicycle chain may snap and cause a fall. Have a worn chain replaced by a dealer before riding the bicycle again.

There are two basic types of bicycle chains:

- wide bicycle chain (1/2 x 1/8") for hub gear shifters,
- narrow bicycle chain (1/2 x 3/32") for chain gear shifters.

➢ Clean and oil your bicycle chain regularly.
➢ To prevent premature wearing of the chain in the case of chain gear shifters, use gears with a small chain skew as far as possible.
To check the wear of the bicycle chain, proceed as follows:
➢ Take the part of the chain which is lying on the front chain sprocket between thumb and forefinger.
➢ Pull the chain away from the chain sprocket.

If the bicycle chain can be clearly lifted, it is worn and should be replaced with a new one.

In the case of hub gear shifters, the chain tension must be adjusted so that the chain hanging between the front chain sprocket and the rear sprocket has a vertical play of one to two centimetres.

If you need to re-tension the bicycle chain, proceed as follows:
➢ Loosen the rear wheel nuts.
➢ Pull the wheel backwards in the dropouts until the play of the bicycle chain meets the specifications.
➢ Carefully tighten any previously loosened nuts or bolts in a clockwise direction.

Brakes, brake levers and braking systems

This operating manual describes the typical, conventional braking components of an MTB, ATB, crossbike or racing cycle. In the case of differing components, refer to the special information or attached manuals. If anything is unclear to you, consult your bicycle dealer in the case of questions regarding assembly, maintenance and operation.

There are several different kinds of brakes, depending on where they are used:
- hub brakes,
- disc brakes and
- wheel rim brakes.

The brakes may be actuated mechanically or hydraulically.
Normally, in the case of hub gear shifters, the brake lever for the front brake is at the right-hand side of the handlebar, in the case of chain gear shifters it is at the left-hand side. Acquaint yourself with the positions of the brake levers before starting to ride.

Have maintenance work carried out by a specialist workshop.
Do not apply oily liquids to brake pads, wheel rim braking surfaces, brake blocks or brake discs, otherwise the efficiency of the brakes will be reduced.

Brake pads are consumable parts. Check them regularly for wear. This is recognisable via a marking. For example, the grooves on the brake block may not be visible anymore. Always exchange both brake blocks at the same time.

Use only original spare parts, otherwise reduced functionality or damage to the bicycle may result.

To obtain a correct friction pairing, use only brake pads which fit the wheel rim, otherwise a longer braking distance and greater wear will result.

If you wish to fit the brake lever to the opposite side of the handlebar, refer to the manufacturer's operating instructions for use or consult a dealer.

The brake blocks must not come into contact with oil or grease. If the brake blocks have come into contact with oil or grease they must be replaced, otherwise braking efficiency may be strongly impaired.

Tighten all screws to the specified torque, otherwise the screws could break off and parts may become loose. (see chapter 'Tightening torques of screws, nuts and bolts', page 45).

 Brake cables are consumable parts. Check them regularly for wear and have them replaced if necessary.

Check the brake cable for rust and fraying and replace it if any faults are found. If the cable is not replaced, braking malfunctions may occur.

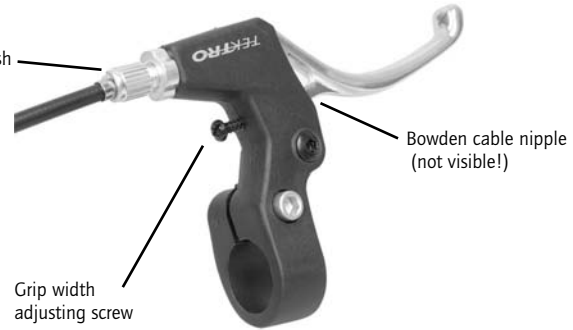
Checking hub brakes
Hub brakes are virtually maintenance-free since the braking body is located inside the hub.

A hub brake may only be fitted at a later stage to the front wheel if the letter "N" is stamped on the bicycle fork, otherwise the brakes may malfunction.

Hub brakes become hot when subjected to constant load. Braking efficiency is thus reduced. The brakes may fail completely.
Adjust your riding style accordingly.

Brake levers

Standard brake levers
The bicycle is fitted as standard with a suitable brake lever.
Check regularly that the brake lever does not contact the handlebar grip when you pull it. Push the bicycle backwards and forwards to determine whether or not there is still sufficient braking power. If the bicycle rolls slightly, you must adjust the brake lever or have the brake blocks replaced.



Wheel rim brakes

V-brakes are very powerful lever brakes. Acquaint yourself with the V-brake and use the braking power sparingly. Practise emergency braking until you are in full control of the bicycle even when braking very strongly.

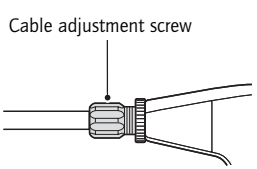
The improper use of additional sprung elements (power-modulators) can lead to serious falls. The spring power of the power modulator is dependant on the actual total weight of the bicycle.

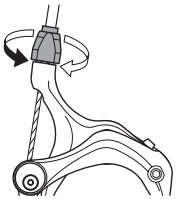
If the brake blocks are worn to the extent that the notches are no longer visible, have them replaced by a specialist workshop.

Adjusting the brakes
Your bicycle's brakes have been correctly adjusted in the factory or by your dealer. The gap between the brake block and the wheel rim is approx. 1 – 1.5 mm. However, the brake blocks are subject to wear, so that the gap becomes ever larger and the brake lever travel becomes longer. The brakes must therefore be checked at regular intervals and adjusted if the lever travel is too great or the brakes do not brake correctly.

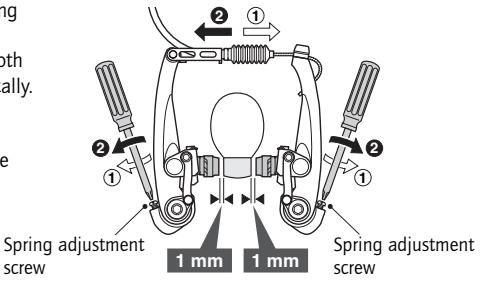
Checking the brakes:
- ➢ Pull the brake lever for the front or rear brake three quarters of the way back whilst pushing the bicycle.
- ➢ The rear wheel should lock, or
- ➢ the front wheel should brake so strongly, that the bicycle begins to tip over towards the front.

Adjusting the gap between the brake pad and the wheel rim
Turn the cable adjustment screw (adjusting bush). To increase the brake pad gap, the adjusting screw is turned towards the inside (clockwise). To decrease the brake pad gap, the adjusting screw is turned towards the outside (anticlockwise). The gap between the brake block and the wheel rim should be 1 mm.





If necessary, adjust the spring tension using the spring adjustment screw so that both brake arms move symmetrically.



Subsequently, check that the brakes work correctly (see page 26).

If the brakes do not work correctly, of if the brake blocks are worn to the extent that adjustment is no longer possible, have the bicycle checked and the brake blocks replaced by a dealer.

Disc brakes

General safety advice

This type of brake is fitted with a brake disc mounted on the hub and a brake saddle on the frame or on the fork.

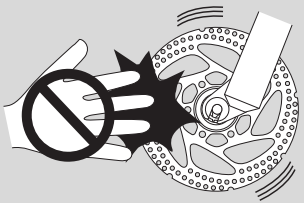
Have disc brakes adjusted by a dealer.
Incorrect adjustments can lead to accidents.

Carry out a braking test after each adjustment by pushing the bicycle strongly whilst pulling the brake lever. Only use your bicycle when it can be safely braked.

Disc brakes require a 'braking-in' period. Braking power increases with time. You should therefore be aware during the braking-in period that the braking power can increase. The same applies after replacement of the brake blocks or the disc.

If you hear noises when braking, the brake blocks may be worn down to the wear limit. Allow the brakes to cool down and have the brake block thickness checked or the brake blocks replaced.

Be particularly careful not to touch the brake disc with your finger during installation, removal or maintenance if the disc is rotating. If you insert your fingers in the holes in the brake disc, you may suffer serious injury.



The brake saddle and the disc may be hot after braking, therefore do not touch them during or immediately after riding, as you could burn yourself.
Before adjusting the brakes, check that the parts have cooled down sufficiently.

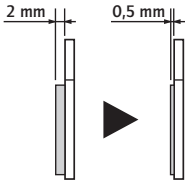
! Your bicycle may be fitted with a disc brake only when appropriate fixings are present on the frame and on the fork. If in doubt, consult a dealer.

If the brake blocks have come into contact with oil or grease they must be replaced. If the brake disc has come into contact with oil or grease it must be cleaned, otherwise braking efficiency may be strongly impaired.

Check whether or not the quick release lever is located on the right-hand side (opposite side to the brake disc). If the quick release lever is located on the same side as the brake disc, there is a danger that the lever and the brake disc could impair one another

A worn, cracked or bent brake disc must be replaced. Consult a dealer.

If the thickness of the brake block is less than 0.5 mm, it must be replaced.



Hydraulic disc brakes

The hydraulic oil pressure disc brake has a fluid reservoir on the brake lever. The hydraulic fluid is fed to the brake cylinders via a tube. The brake blocks are thus pressed against the wheel rim via the brake pistons. This is a low maintenance type of brake.

Carry out a braking test after each adjustment by pushing the bicycle strongly whilst pulling the brake lever. Only use your bicycle when it can be safely braked.

Check the tubes and connections for leaks each time before riding. Leaking tubes and connections can result in brake fluid leaking out of the braking system. This can lead to reduced efficiency of the brakes.

Do not use the brakes further if oil leaks out; have the appropriate repairs carried out by a dealer without delay.
If you continue to ride in this condition, there is a large risk of brake failure. If the brake blocks have come into contact with oil or grease they must be replaced. If the brake disc has come into contact with oil or grease it must be cleaned, otherwise braking efficiency may be strongly impaired.

Steam bubble formation

- Steam bubble formation may occur if the brakes are applied constantly.

Therefore, Release the brake lever from time to time in order to avoid such a situation.

- Steam bubbles are formed when the oil heats up to the extent that water in the braking system boils and air bubbles expand.. Due to this, the brake lever travel can suddenly become larger.

The bicycle is stored or transported upside down, air bubbles may form in the brake system reservoir.

If the bicycle is used in this condition, there is a risk of brake failure which could lead to a serious accident.

After bringing the bicycle back into an upright position, the brake lever must be pulled a few times to check that the brakes respond normally. If the brakes do not respond normally, they must be adjusted as follows:

➢ Set the brake lever parallel to the ground and pull it a few times slowly so that the bubbles return to the reservoir.

➢ If the response is still bad after this, the brake system needs to be bled. Consult a dealer.

Brake pads and brake blocks are consumable parts.
Have the brake pads of hydraulic oil pressure disc brakes checked regularly by a dealer and replaced if necessary.

Removing / refitting the wheel

➢ It is recommended to use a brake block spacer when removing the wheel. The use of a brake block spacer can prevent the pistons falling out if the brake lever is pulled after the wheel has been removed.

➢ If the brake lever is pulled and no brake block spacer is fitted, the pistons can move as usual. Use a flat blade screwdriver to push the brake blocks back, taking care not to scratch them. (If the brake blocks are not fitted, push the pistons back carefully without damaging them). If it is difficult to push back the brake blocks or pistons, remove the lid of the reservoir and try again. (please remember that oil may overspill from the reservoir).

➢ After fitting the wheel, check whether or not the quick release lever is located on the right-hand side (opposite side to the brake disc). If the quick release lever is located on the same side as the brake disc, there is a danger that the lever and the brake disc could impair one another

Cleaning the braking system

If the brake blocks have come into contact with oil or grease they must be replaced. If the brake disc has come into contact with oil or grease it must be cleaned, otherwise braking efficiency may be strongly impaired.

➢ Use isopropanol, soapy water or a dry cloth to clean and maintain the braking system. Do not use commercially available brake cleaning agents or agents for preventing brake noises as these may damage parts such as seals.

Drum brakes and roller brakes

In the case of roller and drum brakes, the braking power is transmitted from the brake lever via a cable to the braking system. Roller or drum brakes become very hot when subjected to constant load. Braking efficiency is thus reduced. The brakes may fail completely. Adjust your riding style accordingly.

ⓘ Roller and drum brakes require a specially matched brake lever.

- ➢ Check regularly that the screws on the brake lever are tight.
- ➢ Tighten them in a clockwise direction if necessary.
- ➢ Check the brake function by pulling the brake lever three quarters of the way back whilst pushing the bicycle. The rear wheel should lock.
  The front wheel should brake so strongly, that the bicycle begins to tip over towards the front.
- ➢ Oil the brake cable regularly.

! Brake pads are consumable parts. Have the brake pads of coaster, roller and drum brakes checked regularly by a dealer and replaced if necessary.

If the bicycle is left standing for a longer period, a rust film may form in the brake drum, increasing the braking effect. Therefore, when beginning your journey, brake gently a few times to wear off the rust film. This will help to avoid the brakes suddenly locking.

SRAM drum brakes

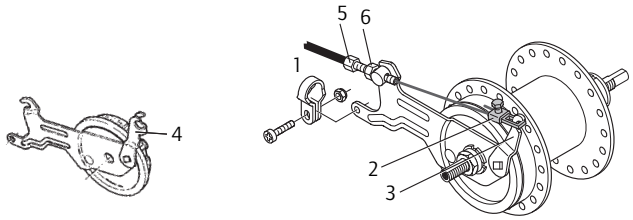
! The drum brake can be controlled very precisely. The full braking power is achieved after a certain running-in period.

In order to get used to the brakes, operate the brake lever carefully at first to acquire a feel for the drum brake's deceleration.

Do not rinse drum brake hubs with petrol or similar fluids when cleaning the wheel.

Note:
The brake anchor plate must be replaced if oil or other greasy substances have got onto the brake pads. Oily brake pads reduce braking efficiency and may even lead to total brake failure. This can lead to falls or collisions resulting in very serious injuries.

The brake arm of the drum brake is fixed to the frame by means of a suitable pipe clip (1).



! Mount the brake arm between the two tabs of the pipe clip!
The pipe clip must sit on the frame with absolutely no play! Use a self-locking nut! Tightening torque: 2 – 3 Nm.

Mounting / dismounting the drum brake
- ➢ Hook up the cable clip (2) to (or unhook it from) the brake lever (3).
- ➢ For the NL version with special lever (4), use only an original NL brake cable (the cable clip (2) is not suitable for this purpose).

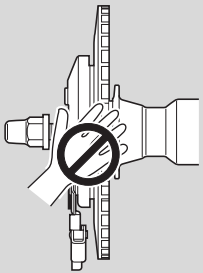
Fine adjustment of the brake:
- ➢ Unscrew the adjusting screw (5) until the brakes drag slightly when the wheel is rotated.
- ➢ Actuate the manual brake lever powerfully several times and, if necessary, turn the adjusting screw further until the brakes drag slightly once again.
- ➢ Tighten the hexagonal nut (6).
- ➢ Repeat the adjustment if the braking effect wears off after prolonged use or if the manual brake lever can be pulled back to the handlebar grip.

! If the cable needs to be replaced, consult your dealer.

If the clip nut loosens itself from the brake arm or the clip screw or brake arm clip are damaged, the brake arm can rotate on the chainstay.
This can cause the handlebar to move suddenly or the wheel to lock, which can lead to a fall with serious injuries.

Shimano drum brake (Inter-M)

If any of the following signs occur when braking, you must not ride any further:
1) abnormal braking noises, or
2) unusually high braking power or
3) unusually weak braking power.
In these cases, consult a specialist workshop.



The brake drum can get very hot after prolonged braking; the brakes should therefore not be touched for at least 30 minutes after riding.

Check that the front brake is fixed correctly to the hub by means of the brake unit fixing nut.

Check whether the hub axle is touching the inner side of the fork and whether the wheel is fixed correctly to the frame by means of the quick release; a loose connection can lead to serious accidents.

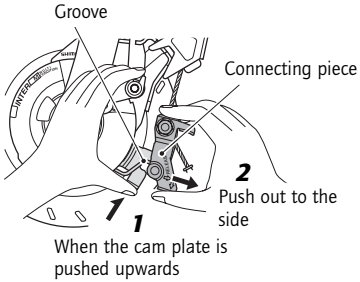
Braking performance may be reduced by a rusty brake cable. In this case, replace the brake cable by a new, original brake cable and check the brake function again.

! The Inter-M brake differs from conventional band brakes in that the brake drum is filled with grease. The rotational resistance of the wheel can increase slightly, especially in cold weather.

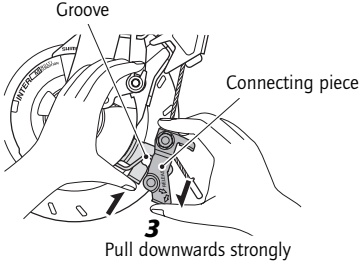
The Inter-M brake is equipped with a modulator to control the braking force exerted on the hub. When the brake is operated, the modulator generates noises. However, these noises do not indicate a fault.

If you operate the Inter-M brake strongly when the bicycle is at a standstill and pull on the wheel, you will notice a small amount of play. This is normal and does not cause any problems when riding.

Front wheel roller brake
Dismantling **(before removing the wheel)**

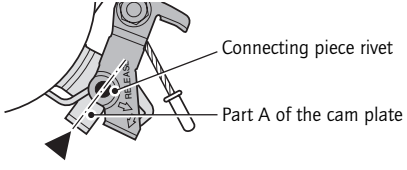


➢ Push the cam plate as far as it will go. Then push the connecting piece along the groove in the cam plate to remove it.
If it is difficult to remove the connecting piece, the cable adjusting screw must be turned to the right in order to decrease the cable tension first.



Assembly **(after fitting the wheel)**

➢ To attach the brake cable, the above steps must be performed in the reverse order. When attaching the connecting piece to the cam plate, it must pushed until it latches. Check that the connecting piece is located correctly in the position shown.

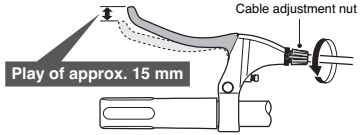


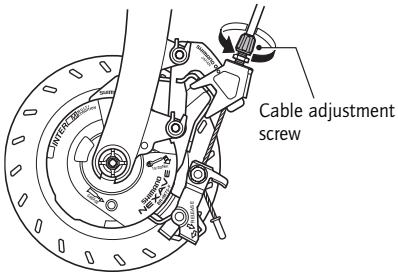
! The rivet must be located in the middle of part A of the cam plate.

➢ Pull the brake lever and check the brake function.
If the brake does not function properly, the brake cable must be adjusted.

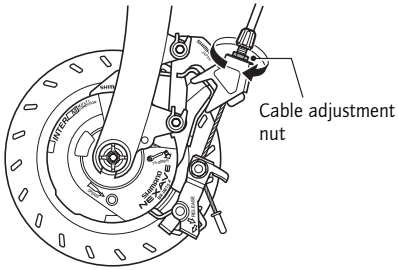
Adjusting the brake cable

➢ Check whether the wheel shows resistance to rotation when the brake cable is taut. Pull the brake lever strongly about ten times towards the grip in order to stretch the cable.
Adjust the brake lever play to about 15 mm using the cable adjustment screw on the brake unit or the brake lever. The brake lever play is the distance between the initial position of the brake lever and the position at which a braking effect is felt when pulling the lever.





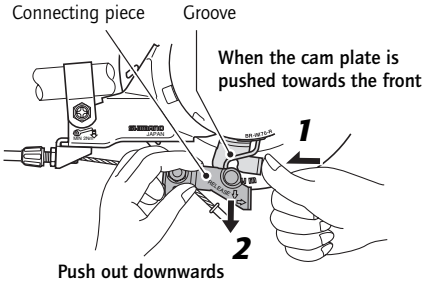
➢ Pull the brake lever to check the brake function and secure the cable adjustment screw using the cable adjustment nut.



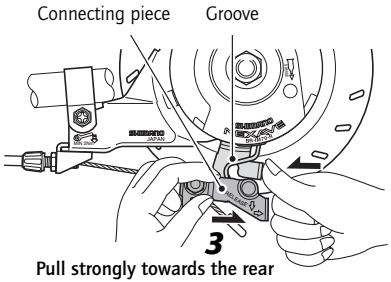
Rear wheel roller brake

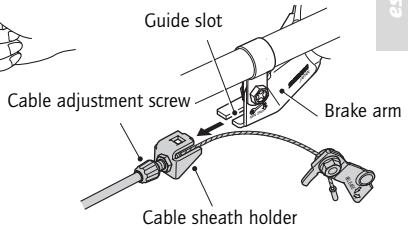
Dismantling **(before removing the wheel)**

➢ Push the cam plate as far as it will go. Then push the connecting piece along the groove in the cam plate to remove it.
If it is difficult to remove the connecting piece, the cable adjusting screw must be turned to the right in order to decrease the cable tension first.



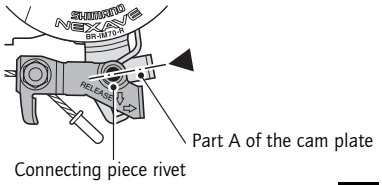
➢ Push the cable sheath holder out of the guide slot in the brake arm to remove it.





Assembly **(after fitting the wheel)**

➢ To attach the brake cable, the above steps must be performed in the reverse order.
When attaching the connecting piece to the cam plate, it must pushed until it latches. Check that the connecting piece is located correctly in the position shown.

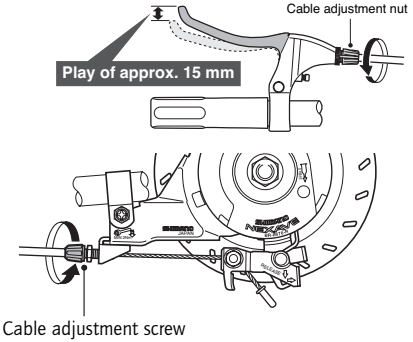


! The rivet must be located in the middle of part A of the cam plate.

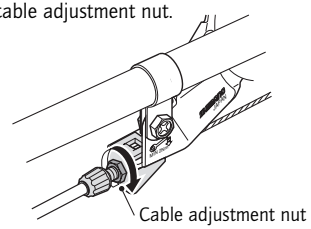
➢ Pull the brake lever and check the brake function.
If the brake does not function properly, the brake cable must be adjusted.

Adjusting the brake cable

➢ Check whether the wheel shows resistance to rotation when the brake cable is taut. Pull the brake lever strongly about ten times towards the grip in order to stretch the cable.
Adjust the brake lever play to about 15 mm using the cable adjustment screw on the brake unit or the brake lever. The brake lever play is the distance between the initial position of the brake lever and the position at which a braking effect is felt when pulling the lever.



➢ Pull the brake lever to check the brake function and secure the cable adjustment screw using the cable adjustment nut.



Frame

The shape of the frame depends on the type and function of the bicycle.
Frames are manufactured from a variety of materials, such as steel or aluminium alloys or carbon.

Never ride with a bent or cracked frame.
Never attempt to repair damaged parts. This can lead to accidents. Replace defective parts before using the bicycle again.

Following an accident or a fall, have your bicycle checked by a dealer before using it again. Undetected defects on the frame or other permanent parts may lead to accidents.

Avoid jumps and riding over high kerbs. These can lead to frame damage and thus to serious accidents.

ⓘ The frame number of the bicycle is located on the seat tube or on the bottom bracket. The bicycle can be identified by the frame number in case of theft. In the case of a carbon frame, the frame number may be located on the inner side of the dropouts.

If your bicycle does not travel in a straight line, have the tracking adjusted by a specialist cycle dealer.

Wenn Ihr Fahrrad nicht geradeaus läuft, lassen Sie die Spur von einem Fachhändler einstellen.

Bicycle fork

Suspension fork

The front wheel is held by the bicycle fork. The fork comprises two fork sheaths, the fork crown and the fork tube.
The majority of mountain bikes and also trekking and city bikes are fitted with suspension forks. They provide more comfort when riding the bicycle.

To adjust an oil-air fork, proceed as follows:
- ➢ Adjust the suspension hardness via the air pressure in the fork.
- ➢ Check the air pressure regularly with a pump.

To adjust an elastomer fork, proceed as follows:
- ➢ To increase the spring tension, turn the adjustment knob on the top of the fork head clockwise by hand.
- ➢ To decrease the spring tension, turn the adjustment knob on the top of the fork head anticlockwise by hand.
- ➢ Clean and grease the plastic springs regularly.

To adjust a steel-spring fork, proceed as follows:
- ➢ To increase the spring tension, turn the adjustment knob on the top of the fork head clockwise by hand.
- ➢ To decrease the spring tension, turn the adjustment knob on the top of the fork head anticlockwise by hand.

ⓘ Since various types of damping exist, this operating manual cannot deal with every system. Read the manufacturer's operating manual or consult a dealer.

ⓘ Tune the suspension fork to the weight of the rider and the intended use. In this way, the optimum functional efficiency is achieved. To this end, read the manufac turer's operating manual.

Never ride with a damaged bicycle fork. A defective bicycle fork should not be repaired as this can lead to serious accidents. Replace bent or otherwise damaged forks before using the bicycle again.

Avoid jumps and riding over high kerbs. These can lead to damage to the fork and thus to serious accidents.

Check regularly that all screws on the bicycle fork are tight. Loose screws can cause serious accidents.

Chainstay dampers
The chainstay dampers provides a more comfortable ride.

1 Spring dampers
2 Air dampers

Spring dampers
may be used for sporty and also for comfortable riding. The compression or rebound speed is controlled by oil or gas pressure chambers, which are adjustable on most suspension elements. When adjusting the suspension, only carry out one adjustment at a time. The spring can be pre-tensioned using the pre-tensioning nut. In the case of shock absorbers with adjustable damping, the rebound speed can be set slower by turning the red adjustment knob anticlockwise.
The compression speed can be set faster by turning a compression knob anti-clockwise. If the shock absorber is particularly dirty clean it carefully, especially the piston rod and the wiper. At the same time, check whether the stop buffer is damaged. If so, have it repaired by a specialist workshop.

Air dampers
are generally used where comfort is required. Apart from pumping up, air suspension needs no maintenance. How often you need to pump up will depend on the desired air pressure. For physical reasons, high pressure reduces faster than low pressure. If the bicycle is used daily, the air pressure will last longer than when the bicycle is used only rarely. The pre-tensioning of a damper is adjusted via the air pressure in the main chamber of the damper. In the case of air dampers with adjustable damping, the rebound speed can be adjusted via the pressure in the auxiliary chamber.

ⓘ Since various types of damping exist, this operating manual cannot deal with every system. Read the manufacturer's operating manual or consult a dealer.

Tighten all screws to the specified torque, otherwise the screws could break off and parts may become loose. (see chapter 'Tightening torques of screws, nuts and bolts', page 45).

Checking the wheels

The wheels form the interface between bicycle and road. Unevenness of the road surface and the weight of the rider place a great strain on the wheels.
The wheels are carefully checked and centred before delivery.
Despite this, the spokes will settle during the first 100 km of riding.

- ➢ After riding the first 100 km or so, have the wheels checked and, if necessary, centred by a dealer.
- ➢ After this, check the tension of the spokes regularly and have loose or damaged spokes replaced or centred by a dealer.

Checking the hubs

Tighten all screws to the specified torque, otherwise the screws could break off and parts may become loose. (see chapter 'Tightening torques of screws, nuts and bolts', page 45).

The wheel is fixed via the hub axle to the bicycle fork or the frame. The axle is fastened by means of either a hexagonal (cap) nut or a quick release.

To check the hub bearings, proceed as follows:
- ➢ Lift up the wheel and turn it.
- ➢ Check that the wheel continues to turn a few times and then slows down and stops.
- ➢ To check whether there is play in the hub bearing, try to move the wheel backwards and forwards in the fork or chainstays.
- ➢ If you determine that there is play in the bearings, or if the wheel is hard to turn, have the hub bearings adjusted by a dealer.

Checking the wheel rims

If you use wheel rim brakes, the wheel rim is subject to greater wear.

When a wheel rim is worn, the tyre air pressure can damage the wheel rim. This can lead to serious accidents. As soon as you see any marks on the wheel rim (grooves, coloured spots) or if an applied coloured ridge has worn off, replace the wheel rim.

! Bicycles from size 24" upwards are fitted with a wheel rim wear indicator. On the flanks of the wheel rim there is a line or groove which runs along the complete circumference of the rim.

Checking the tyres and inner tubes

Tyres

There are many different types of tyre. The suitability for a particular type of terrain and the roll resistance depend on the tyre tread.

Pump up the tyre only to the maximum permissible pressure, otherwise it may burst. If the tyre pressure is too low, the tyre can loosen itself from the wheel rim. The maximum permitted tyre pressure can be found on the side-wall of the tyre.

When changing tyres, use only tyres of the same type, size and tread, otherwise the bicycle's handling characteristics may be negatively affected.
This can lead to accidents.

! Tyres are consumable parts. Check the tread depth, tyre pressure and side-wall condition regularly. Replace worn tyres before using the bicycle again.

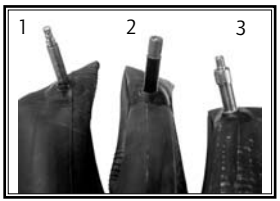
Note the size of the fitted tyre. There are standard descriptions for tyre sizes.
Example 1: "46-622" means 46 mm tyre width and 622 mm diameter.
Example 2: "28 x 1.60 Inch" means 28 inch diameter and 1.60 inch tyre width.

Air pressures are often given in the English PSI unit. You will find a table to convert pressure from PSI to Bar in the chapter "Technical data", page 44.

Inner tubes

The inner tube is required to maintain the air pressure inside the tyre.
It is pumped up via a valve.

There are three different types of valve:
Sclaverand or racing valve (1),
Schrader or automatic valve (2) and
Dunlop or lightning valve (3).



All three types of valves are protected from the ingress of dirt by a cap.
To pump up an inner tube with a Sclaverand or racing valve, proceed as follows:

- ➢ Screw off the valve cap in an anticlockwise direction with your finger.
- ➢ Unscrew the knurled nut in an anticlockwise direction.
- ➢ Press the knurled nut into the valve with your finger until air escapes.
- ➢ Pump up the inner tube using a suitable pump.

ⓘ A dealer can advise you which pump is suitable for your valve.

- ➢ Tighten the knurled nut after pumping by screwing it in a clockwise direction.
- ➢ Screw the valve cap onto the valve in a clockwise direction.

To pump up an inner tube with a Dunlop or lightning valve and Schrader or automatic valve, proceed as follows:

- ➢ Screw off the valve cap in an anticlockwise direction.
- ➢ Pump up the inner tube using a suitable pump.
- ➢ Screw the valve cap onto the valve in a clockwise direction.

Repairing a puncture

If you wish to repair a punctured tyre, you will need the following equipment:

- spare inner tube,
- spare valve,
- plastic tyre levers,
- patches,
- rubber glue,
- sandpaper,
- spanners (if your bicycle is not fitted with quick releases) and
- bicycle pump.

To repair a punctured tyre, you must remove the defective wheel.
First remove the brakes. The procedure depends on the type of brakes fitted to your bicycle.

Read the chapter on brakes before removing the brakes, otherwise the braking system may be damaged. This can lead to accidents.

Removing a cantilever or V-brake

- ➢ Grip the wheel with your hand.
- ➢ Press the brake pads or the brake arms together against the wheel rim.
- ➢ Unhook the brake cable from one of the brake arms.

Removing a hydraulic wheel rim brake
There are two possibilities:

- ➢ If brake quick releases are fitted, dismount one brake unit (see chapter "Use of the quick release", page 7).
- ➢ If no quick releases are fitted, let the air out of the tyre.

Removing a side-pull brake

➢ Loosen the screws fastening the brake blocks to the brake arms.
The tyre slips through between the brake pads.

Removing a hub gear shifter, roller, drum or coaster brakes

➢ Loosen the screw or the quick release on the brake arm.

Removing the wheel

➢ If your bicycle has a chain gear shifter, change to the smallest rear sprocket. The removal of the wheel is not hindered by the gear shift mechanism in this position.
➢ If your bicycle is fitted with quick releases, open them (see chapter "Use of the quick release", page 7).
➢ If your bicycle is fitted with hexagonal cap nuts, loosen them in an anticlockwise direction using a size 15 spanner.
➢ Fold the gear change mechanism towards the rear.
➢ Pull the wheel out of the fork.

If this does not work, your bicycle is fitted with a safety mechanism to prevent the wheel falling out. This will take the form of either retaining lugs or sheet metal protectors, which grip inside a notch in the wheel receptacle.

➢ In this case, lift up the bicycle a little.
➢ Tap the wheel lightly from above with your hand.
The wheel will fall out.

Removing the tyre and inner tube from the wheel rim

➢ Remove the valve cap and the fixing nut from the valve.
➢ Let the air out of the inner tube.
➢ Place the tyre lever against the lower edge of the tyre opposite the valve.
➢ Lever the side-wall of the tyre over the wheel rim.
➢ Push the second tyre lever between wheel rim and tyre at a distance of approximately 10 cm from the first.
➢ Lever the tyre with the tyre lever over the wheel rim as often as is necessary until the entire circumference of the tyre is loosened.
➢ Remove the inner tube from the tyre.

Repairing the inner tube

➢ Pump up the inner tube.
➢ To check where the inner tube is damaged, place it in a bowl of water.
➢ Hold the inner tube under the water.

Air bubbles will rise to the surface from the place where the inner tube is torn or punctured.

➢ Allow the inner tube to dry.
➢ Roughen up the damaged area of the inner tube with sandpaper.
➢ Apply rubber glue to the area.
➢ Wait a few minutes until the rubber glue is dry to the touch.
➢ Press the rubber patch firmly onto the damaged area.
➢ Allow the rubber patch to dry for a few minutes whilst applying pressure.

Fitting the tyre and inner tube

> **!** Avoid foreign bodies getting inside the tyre. Make sure that the inner tube is free of creases at all times and is not squashed.

➢ Check that the wheel rim tape covers the spoke nipples and is not damaged.
➢ Place one flank of the wheel rim inside the tyre.
➢ Press one side of the tyre completely into the wheel rim.
➢ Pump up the inner tube just enough so that it is round.
➢ Place the inner tube inside the tyre.
➢ Press the tyre over the wheel rim.
➢ Pull the tyre down strongly.

The area already mounted slides into the base of the wheel rim.

➢ Check again that the inner tube is correctly seated.
➢ Push the tyre completely over the wheel rim with the ball of your hand.
➢ Pump up the inner tube to the recommended tyre pressure.
➢ Check the seating of the tyre by means of the control ring on the side of the wheel rim.

Fitting the wheel

> **!** If your bicycle is fitted with quick releases, mount the front wheel so that the quick release lever is on the opposite side to the chain. In this way, you will avoid fitting the wheel the wrong way around.

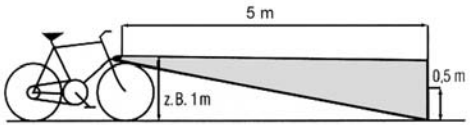
➢ Insert the wheel to the limit and centrally in the dropouts.
➢ Tighten the hub nuts or the quick release.
➢ Hook up the brake cable.
➢ Check that the brake pads contact the brake surfaces.
➢ Carry out a braking test.

Operating the lighting components

Only lighting elements which are stipulated by and approved according to national regulations may be attached to bicycles.
If in doubt, consult your dealer.

Lighting regulations

- The light cone from the front headlamp may only be half as high at a distance of 5 metres as it is at the point of exit from the headlamp. The centre of the light cone is decisive for determining the height.



- The light cone from the front headlamp must strike the road at a distance of maximum ten metres. The centre of the light cone is decisive for determining the height.
- Attach the rear light at a minimum height of 25 cm.

Dynamo

The dynamo produces the energy necessary to drive the headlamp and rear light.

Side dynamo

The dynamo must be vertical to the wheel axle and the friction roller must contact the tyre over its entire width.

Side dynamo

Turn the dynamo on and off only when standing still, otherwise it is dangerous for yourself and other road users. The efficiency of the side dynamo is reduced in wet weather. If necessary, provide extra lighting.

➢ Switch on the dynamo using either a pushbutton or a lever. The friction roller is now in contact with the side-wall of the tyre.
➢ To switch off the dynamo, move it back to its initial position. The dynamo latches in its original position.

Hub dynamo

The hub dynamo is located in the front wheel hub. The efficiency of the hub dynamo is very high, wear on the other hand is very low.

Some bicycles with a hub dynamo are fitted with a switch or a sensor on the back side of the headlamp. The sensor switches on the light at dusk or when riding in a tunnel. Other models have a switch on the handlebar.

Hub dynamo

If you need to remove the front wheel, first remove the connecting clamp. Fit the front wheel so that the connecting clamp is located on the right-hand side (as seen towards the direction of travel). If the connecting clamp is located on the left-hand side, the dynamo cannot turn correctly, or the lighting system may fail. Observe the correct polarity of the connections.

The hub dynamo generates high voltage, therefore do not touch the connecting clamp when the front wheel is turning.

Failure of the lighting system

Failure of the lighting system when riding in the dark can lead to serious accidents. Have the fault rectified by a dealer before riding further.

Carrier

The DIN 79 121 standard specifies how carriers may be built and loaded. The maximum load may be higher depending on the constructional design. This will be specified separately.
The loading capacity of the carrier is divided into four weight classes:
5 kg, 10 kg, 18 kg and 25 kg.

The specified loading capacity is stamped on the carrier.

Luggage alters the riding characteristics of your bicycle. Amongst others, the braking distance is increased. This can lead to serious accidents. Adjust your riding style accordingly.

! If you load your bicycle with luggage, it is imperative to observe the maximum permissible loading of the bicycle (see chapter "Total permissible weight of the bicycle", page 44).

A carrier fitted later on must conform to DIN 79 121.
The maximum permissible load must be stamped on it (see chapter "Permissible carrier load", page 44).

Front wheel carriers are supported by the front axles or so-called 'low-rider-hubs'. Special carrier bags can also be attached to the 'low-rider-hubs'.

ⓘ Use only suitable carrier bags.
Enquire at a specialist dealer.

Chainstay carrier

! Mount child seats on chainstay carriers only if appropriate fixings are present. Do not exceed the maximum allowable weight class.

Chainstay carrier

This type of carrier is supported by the chainstays of the bicycle. Due to the weight of the uncushioned mass, the reaction of the chainstay carrier suspension system becomes more sluggish.

Mudguards

Check regularly that the braces are tightly seated in the tear-off fasteners. It is imperative to have damaged mudguards replaced before using the bicycle again.

ⓘ Tear-off fasteners are mounted on the front wheel braces. They prevent objects which get swept along from locking the front wheel. The tear-off fastener releases the brace in this case and prevents a possible accident. Latch the plug connectors again afterwards.

If your bicycle is fitted with mudguards, they will usually be made from metal or plastic.

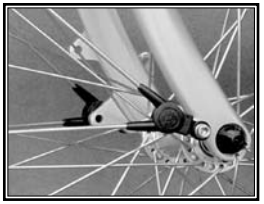
Plastic has the advantage that electrical cables can be integrated in rear wheel mudguards. These plastic mudguards are fitted with special eyes or fixing guides for electrical cables. This ensures that the cables can be laid in such a way that they are optimally protected and cannot be torn off.

Mudguards are fastened in the correct position with the aid of additionally mounted braces. The length of the brace is ideal when the lower edge of the mudguard is approximately circularly parallel to the tyre.

Due to this, the mudguard cannot work loose during normal riding. However, if a foreign body gets between the tyre and the front wheel mudguard, the mudguard loosens itself from the plastic clips. The braces must be refastened afterwards.

Never ride if the braces are loose. Refasten them. If it is not possible to refasten the braces, have them replaced by a dealer.

Latching the SKS ASR safety device



- ➢ Push the front wheel mudguard (profile and brace) onto the ASR plug until it latches.
- ➢ Adjust the mudguard so that the tyre and the front wheel mudguard do not touch each other.

A plastic clip is fixed to the brace.

- ➢ Push the front wheel brace into the easy clip receptacle on the fork until it latches.
- ➢ Adjust the mudguard so that the tyre and the front wheel mudguard do not touch each other.

ⓘ In order to be able to clip the bushes together tightly, it may be necessary to push the brace and the bridge about one millimetre towards each other.

Bicycle stand

Never leave children sitting unattended in the child seat of a parked bicycle. The bicycle can fall over and seriously injure the child.
Never ride with the stand extended.

Selecting accessories and equipment

Use only accessories which conform to the national bicycle regulations. Accessories which are not approved are not safe for use in traffic and can lead to accidents. All accessories and attached parts must be suitable for your bicycle, otherwise accidents or damage to the bicycle may occur.
Take advice from a dealer.

Child seat

Use only child seats which conform to national regulations.
These child seats must support the child's feet securely.

Never leave children sitting unattended in the child seat of a parked bicycle. The bicycle can fall over and seriously injure the child.

Never fasten the child seat directly to the handlebar. Doing so will impair the steering efficiency of the bicycle. Do not use a sprung saddle if you are carrying a child in a child seat mounted behind the saddle, otherwise the child's fingers could be squashed.

Always fasten the child seat's safety belts, otherwise the child could fall out and be seriously injured.

Ensure that children wear well-fitting bicycle helmets, otherwise serious head may occur in case of a fall.
The bicycle's handling will be unfavourably influenced when using a child seat. The extra weight may cause the bicycle to become unstable. The braking distance will be significantly increased. Adjust your riding style accordingly.

Not all bicycles with suspension systems are suitable for carrying child seats. Check the fixing possibilities or consult a specialist workshop. Incorrectly mounted child seats can lead to severe accidents.

Observe the maximum permissible weight of the bicycle and the maximum permissible load of the carrier (see chapter "Permissible carrier load", page 45), otherwise damage to the carrier and the frame may occur. This can lead to serious accidents.

ⓘ A child may only be carried in a child seat up to the age of 7 years.
The rider must be at least 16 years old.

It is not permitted to attach a child seat to a carbon frame, as this could damage the frame.

Bicycle trailer

Use only bicycle trailers which conform to the national bicycle regulations. Trailers which are not approved can lead to accidents.

Bicycle trailers impair the handling of the bicycle. Adjust your riding style accordingly, otherwise the bicycle trailer can tip over or break away and cause an accident.
The braking distance will be greatly increased by a bicycle trailer. This can lead to accidents. At first, practise starting, braking, and riding around curves and downhill with an unloaded trailer.

Bicycle lock

We recommend the use of a cable lock or a D-lock. These offer the greatest security against theft. Connect the D-lock to an object which is permanently anchored to the ground or a building, such as a bicycle stand fixed to the ground. The D-lock can be attached to the bicycle frame by means of a holder so that it is always available for use.
A cable lock additionally immobilises the wheels. If you don't have a lock holder for the frame, you can wrap the cable lock around the seat post instead.

Basket

! The handlebar or handlebar stem must not be damaged when fastening the basket.

- ➢ Attach the basket in such a way that it does not cover up the headlamp or front reflector.
- ➢ Do not bend the brake or gear shift cables when doing this.
- ➢ The basket load must not exceed 5 kg.
- ➢ Remember that the steering characteristics will be altered due to the basket.

Bar-Ends

Always fasten the bar-ends tight to the handlebar as otherwise falls may occur.

ⓘ If your bicycle has a thin-walled handlebar you may require extra parts.
These are intended to prevent damage to the handlebar. Read the manufacturer's operating manual.

Roof and boot racks

Use only roof and boot racks which conform to the national traffic regulations. Roof and boot racks which are not approved are not safe for use in traffic and can lead to accidents.

Loose parts (tools, bags, child seats, bicycle pump etc.) may fall off during transport and endanger other road users.
Remove loose parts from the bicycle before setting off.

The bicycle can detach itself from the rack and cause serious road traffic accidents. Check the fixings regularly during throughout the journey.

! Avoid transporting the bicycle upside down. Do not fasten it via the handlebar, handlebar stem, saddle or saddle support. Do not use any fixings which could damage the bicycle fork or the frame.

Do not hang your bicycle by the pedal cranks on the roof or boot rack.
Always transport bicycles upright on their wheels, otherwise the frame and the forks may be damaged.

Handling carbon components

Carbon is a special material that requires special treatment and care during assembly, maintenance, riding, transport and storage of the bicycle.

Properties
Carbon parts must not be deformed, dented or bent following an accident/fall. The appearance does not change, even though the interior fibres may be torn. You should therefore subject the carbon frame and all other carbon components to an intensive examination following a fall or if the bicycle falls over.

Torques
Some carbon components require lower tightening torques. Excess torques can lead to hidden damage which is not visible from outside. The frame or other components may break or be altered to the extent that you may fall. Therefore always observe the manufacturer's specifications attached or consult a dealer.

Visual check
A previously damaged attached carbon part may suddenly fail without warning. This could lead to injury or even death. Therefore, check your carbon frame and attached carbon parts regularly.

➢ Look for splintering, deep scratches, holes or other changes to the carbon surface.
➢ Check whether any parts feel softer or less hard than usual.
➢ Check whether any individual layers (paint, finish or fibres) are peeling off.

If you are suspicious that a part may no longer be in order, be sure to replace it before riding the bicycle. Better still, take your bicycle to a dealer for inspection.

Check the following parts and areas regularly (at least every 100 km) for cracks, breakage or surface changes and always check these parts following a fall or if the bicycle falls over:

- **Carbon frame**
  Derailleur clamping area, shifter eyes, saddle clamp, headset shell, bottom bracket shell, socket or disc brake receptacle, dropout slot, suspension element receptacles on the handlebar stem and chainstay, bearing receptacles on suspension frames, transitional areas around drinking bottle holders.

Recutting the thread and the bearing shells or rubbing out the seat tube are not allowed. It is not permitted to mount a child seat on a carbon frame – there is a risk that the frame could break.

- **Carbon handlebar**
  Transitional area around the handlebar stem, grips, clamping areas of other attached parts.

If your bicycle has fallen over onto the handlebar, it is best to have it replaced by a dealer. Bar-ends should only be fitted by a dealer.

- **Carbon wheels**
  Wear of the surface and brake blocks, wheel hub and flanks.

Please note that only approved brake blocks may be used.

- **Carbon fork**
  Fork sheaths at the fork head, fork head under the conical ring, clamping area of the A-head, stem inside and out.

If you have changed the handlebar position, remember that the stem must enclose the carbon part extensively.

- **Carbon handlebar stem**
  Screws in the clamping area, fork shaft inside and out.

If you have changed the handlebar stem, remember that the stem must enclose the carbon part extensively.

- **Carbon seat support**
  Area of transition from saddle support to seat tube, area of transition to the head of the saddle support.

If any other parts of your bicycle are made of carbon, check them regularly for cracks, breakages or surface changes.

Splinters
Carbon fibres are very thin and hard. Therefore, handle damaged carbon parts very carefully. Individual fibres may become loose and protrude. If they come into contact with your skin, small splinters may penetrate the skin.

Small repairs in an assembly stand
If you wish to fix your carbon frame in an assembly stand, please clamp it via the saddle support only, since the clamping mechanism could otherwise cause hidden damage to the frame. If your bicycle is fitted with a carbon saddle support, we recommend replacing it by an aluminium or steel saddle support for this work.

Transporting by car

When transporting the bicycle with a roof rack or a trailer, never fasten it via the frame. Always fasten the bicycle via the saddle support, never via the bottom tube, top tube, seat tube, fork sheaths, fork shaft tube, chainstay or seat brace.

The clamping mechanism could cause visible or hidden damage to the frame, which may affect safety. If you have installed a carbon saddle support, we recommend replacing it by an aluminium or steel saddle support for transport purposes.

Care and maintenance of the bicycle

Care

Do not allow any cleaning materials or oil to come into contact with brake pads, brake discs or the wheel rim braking surfaces, otherwise the braking efficiency will be reduced.

 Do not use strong jets of water or steam for cleaning purposes. The water strikes the bicycle under high pressure and can penetrate into the bearings. The lubrication will be diluted and friction will be increased. This leads to the destruction of the bearings or rusting.

Do not clean your bicycle with
- ➛ acids,
- ➛ greases,
- ➛ hot oil,
- ➛ brake cleaner or
- ➛ fluids containing solvents.

These items attack the surface of the bicycle and encourage wear.

Dispose of lubricating, cleaning and care products after use in an environmentally-friendly manner. Do not dispose of these substances in the domestic waste, down the drain or in the countryside.

The trouble-free function and durability of your bicycle depend on its maintenance and care.

- ➢ Clean your bicycle regularly with warm water, a small quantity of detergent and a sponge.
- ➢ Use the opportunity to check your bicycle for cracks, gouges or material deformation.
- ➢ Have defective parts replaced before using the bicycle again.
- ➢ Repair defective paintwork.

Particularly in winter or in an aggressive environment (e.g. at the coast), treat all parts which are subject to corrosion especially often with suitable preservation and care products, otherwise increased corrosion of your bicycle may occur.

- ➢ Clean all galvanised and chrome parts, as well as stainless steel components, regularly.
- ➢ Preserve these parts after cleaning with a wax spray.
- ➢ If your bicycle is not to be used for a longer period of time (e.g. in winter), store it in a dry place at a constant temperature.
- ➢ Before putting your bicycle into storage, pump up both tyres to the specified tyre pressure.

Consumable parts

! Have your bicycle checked regularly by a dealer and the consumable parts replaced.

Your bicycle is a technical product which must be checked regularly. Many parts of your bicycle are subject to higher wear, depending on their function and use.

Tyres
The bicycle tyres are subject to wear. This is dependant on the usage of the bicycle. It can be significantly influenced by the rider.
- ➢ Do not brake so hard that the wheels lock.
- ➢ Check the tyre pressures regularly.
- ➢ If necessary, pump up the tyres to the tyre manufacturer's specified tyre pressure.
- ➢ Avoid prolonged exposure to sunlight, petrol, oil, etc, which can damage the tyres.

Wheel rims in conjunction with brakes
Due to the interaction between the brake and the wheel rim, not only the brake pad but also the wheel rim is subject to wear. If fine cracks appear or the wheel rims deform when the tyre pressure is increased, this indicates increased wear. Wheel rims with wear indicators make it possible to easily determine the amount of wear.
- ➢ Check the wheel rims regularly for wear (see chapter "Checking the wheel rims", page 34).

Brake pads and shoes
The brake pads of wheel rim, roller, drum and disc brakes are subject to wear, depending on the usage of the bicycle. When riding in hilly country or when the bicycle is used for sporting purposes, replacement of the brake pads may be necessary at shorter intervals. Check the brake pads regularly for wear and have them replaced by a dealer if necessary.

Bicycle chains and toothed belts
The bicycle chain is subject to wear. The level of wear is dependant on the care, maintenance and usage of the bicycle (mileage, riding in the rain, dirt, salt, etc).
- ➢ In order to prolong the service lifetime, clean and oil bicycle chains and toothed belts regularly.
- ➢ Have them replaced by a dealer if the wear limit has been reached (see chapter "Bicycle chain maintenance", page 24).

Chain sprockets, rear sprockets, bottom bracket and gear shift rollers
In the case of bicycles with chain gear shifter, the chain sprockets, rear sprockets, bottom bracket and gear shift rollers are subject to wear. The level of wear is dependant on the care, maintenance and usage of the bicycle (mileage, riding in the rain, dirt, salt, etc).
- ➢ In order to prolong the service lifetime, clean and oil these parts regularly.
- ➢ Have them replaced by a dealer if the wear limit has been reached.

Lighting system lamps
Light bulbs and other light sources are subject to wear.
For this reason, replacement may be necessary.
- ➢ Always carry replacement light bulbs, so that defective bulbs can be replaced.

Handlebar tapes and grip covers
Handlebar tapes and grip covers are subject to wear.
For this reason, regular replacement may be necessary.
- ➢ Check regularly that the grips are seated tightly.

Hydraulic oils and lubricants
Hydraulic oils and grease lose their efficiency over a period of time.
Failure to exchange lubricants regularly will result in greater wear of the affected parts and bearings.
- ➢ Clean and lubricate all relevant parts and bearings regularly.

Gear shift and brake cables
- ➢ Maintain all Bowden cables regularly.
- ➢ Have defective parts replaced by a dealer.

This can be especially necessary when the bicycle is often parked in the open and is subject to weather influences.

Paintwork
The paintwork requires regular maintenance. This preserves the optical appearance of your bicycle.
- ➢ Check the paintwork regularly for damage and repair it immediately.

Bearings
All of the bicycle's bearings such as headset, wheel hubs, pedals and inner bearings are subject to wear. This is dependant on the level and length of usage and on the level of care.

Plain bearings and suspension frame / suspension fork or other suspension elements
Suspension components on the bicycle, especially plain bearings and suspension elements are subject to greater strain compared to other bearings. They are subject to wear.
➢ Check these parts regularly and most thoroughly.

Regular inspections

Since the spokes settle, the brake and gear shift cables stretch and the bearings run-in during the first kilometres of riding, the first inspection should be carried out by a dealer after 100 km or after four to six weeks.
Clean your bicycle after each off-road use and check it for damage.

➢ Have the first inspection carried out.
➢ Check your bicycle at intervals of around 300 to 500 km or three to six months.
➢ At this time, check that the following items are all tight:
  ➛ screws,
  ➛ nuts and
  ➛ quick releases.
➢ Clean your bicycle.
➢ Lubricate all moving parts.
➢ Repair all damaged paintwork and rust.
➢ Treat bare metal parts with rust preventer.
➢ Have damaged parts or parts that do not work replaced.

Inspection plan

When?	***Maintenance / Check***
100 km after purchase, after that at least once a year	➢ Check ➛ tyres and wheels. ➢ Have the tightening torques of the following checked: ➛ handlebar, ➛ pedals, ➛ pedal cranks, ➛ saddle, ➛ saddle support and ➛ screws. ➢ Have the following components adjusted: ➛ headset, ➛ gear shifter, ➛ brakes and ➛ suspension elements
When ?	***Maintenance / Check***
After each use of the bicycle	➢ Check ➛ spokes, ➛ wheel rims for wear and roundness, ➛ tyres for foreign bodies, ➛ quick releases, ➛ gear shifter and suspension function, ➛ brakes, ➛ lights and ➛ bell.
After every 300 to 500 km	➢ Have the following checked: ➛ bicycle chain, ➛ rear sprockets,, ➛ chain sprockets, ➛ wheel rims and ➛ brake pads for wear and have them replaced if necessary. ➢ Clean the bicycle chain, rear sprockets andchain sprockets. ➢ Lubricate them with chain grease. ➢ Check that all screws are tight.
After 1000 km	➢ Have the brake hub checked and the brake sleeve replaced if necessary.

After 3000 km

➢ Have the
- ➛ hubs,
- ➛ pedals,
- ➛ brake cables by a dealer
- ➛ dismantled,
- ➛ cleaned,
- ➛ replaced if necessary by a dealer.

➛ headset,
➛ gear shift [1] cables and
➛ checked,
➛ lubricated and

Each time after it rains

➢ Clean and lubricate the
- ➛ gear shifter,
- ➛ bicycle chain.

➛ brakes and

(1) No not apply lubricants or oil to Teflon-coated cable bushings.

Technical data

Total permissible weight of the bicycle

The total permissible weight of the bicycle comprises the weight of the bicycle, the weight of the rider and the weight of the luggage.

Bicycle type	***Total permissible weight***
20" trailer	50 kg
20" child's bicycle	60 kg
24" child's bicycle	80 kg
MTB and racing cycle	110 kg
City- and trekking bike	120 kg
Touring bicycle	140 kg

Permissible carrier load

Observe possible differing data on your carrier or in the manufacturer's specifications.

Maximum load of the rear carrier:

20" child's bicycle and trailer	10 kg
24" child's bicycle	18 kg
Touring, city, trekking bike, ATB	25 kg

Maximum load of the front carrier:

Loading surface above the front wheel	10 kg
Low lying loading surface	18 kg

Tightening torques of screws, nuts and bolts

Use only suitable tools for tightening screwed components, e.g. torque wrench, otherwise the screws may shear off.

Parts may be damaged if the screws are over-tightened. Always observe the specified torque.

Observe the minimum screw depth. In the case of hard aluminium alloys this must be minimum 1.4 x screw diameter (e.g. nominal diameter M 5 x 1.4 = 7 mm).

According to the current state of the art, all screws, nuts and bolts that are relevant to safety should be tightened with a torque wrench. This indicates the corresponding torque in Nm (Newton meter).

Screwed component	***Tightening torque***
Pedal crankset, steel	30 Nm
Pedal crankset, aluminium	30 Nm
Pedals	30 Nm
Wheel, front	25 Nm
Wheel, rear	40 Nm
Handlebar screw	15 Nm
Stem clamp spindle	15 Nm
A-head clamping screw	9 Nm
Bar-Ends – clamping screw on the handlebar	10 Nm
Bar-Ends – horn clamps on clamping collar	6 Nm
Saddle support clamp screw M8	20 Nm
Saddle support clamp screw M6	14 Nm
Saddle support clamp	20 Nm
Brake blocks	6 Nm
Dynamo mounting	10 Nm
Saddle clamp	14 Nm
Saddle clamp on carbon frame	5 Nm*
Drinking bottle holder on carbon frame	2 Nm
The following are different for carbon frames:	
Derailleur clamp fixing screw	3 Nm*
Gear shift lever fixing screw	3 Nm*
Brake lever fixing screw	3 Nm*
Clamp, handlebar – handlebar stem	5 Nm*
Clamp, handlebar stem – fork shaft	4 Nm*

* We recommend the use of plastic mounting paste under the components.

In the case of carbon parts, observe any differing information or marking regarding the recommended torque.

General tightening torques of screws, nuts and bolts

The screw quality is stamped on the screw head, e.g. 8.8.
If the manufacturer's specifications do not differ, the following torques (average values) apply, depending on the screw quality:

Dimension	***Screw quality stamp***			***Unit***
	8.8	***10.9***	***12.9***	
M 4	2,7	3,8	4,6	Nm
M 5	5,5	8,0	9,5	Nm
M 6	9,5	13,0	16,0	Nm
M 8	23,0	32,0	39,0	Nm
M 10	46,0	64,0	77,0	Nm

Not all values can be applied to other manufacturers' components. Read the component manufacturer's specifications or observe the torque specifications marked on the components.

Tightening torques of Shimano components

Article	***Specification***	***Tightening torque***
Gear shifter (RD)	Fixing bolts (shifter eye)	8 Nm
	Inner cable fixing screw	5 Nm
	Schaltrollenbefestigungsschraube	3 Nm
Derailleur (FD)	Clip fixing screw	5 Nm
	Inner cable fixing screw	5 Nm
Derailleur on carbon frame (FD)	Clip fixing screw	3 Nm*
Gear shift lever (STI/SL)	Fixing screws	6 Nm
Gear shift lever on carbon handlebar	Fixing screw	3 Nm*
V-brake (BR)	Fixing screw (welded socket)	5 Nm
	Inner cable fixing screw	6 Nm
	Brake pad fixing bolt	8 Nm
Racing cycle brake (BR)	Fixing screw (welded socket)	5 Nm
	Inner cable fixing screw	6 Nm
	Brake pad fixing bolt	8 Nm
Cantilever brake (BR)	Fixing screw (welded socket)	5 Nm
	Inner cable fixing screw	6 Nm
	Brake pad fixing bolt	8 Nm
Brake lever (BL)	Clip fixing screw	6 Nm
Brake lever on carbon handlebar	Fixing screw	3 Nm*
Rear wheel hub (FH)	Freewheeling body fixing screws	40 Nm
Inner bearing (BB)	Bearing casing right and left	50 Nm
Inner bearing (BB)	Plastic bearing casing right and left	30 Nm
Crank assembly (FC)	Crank arm fixing screw	35 Nm
	Chain sprocket fixing screw	10 Nm
Pedals (FC)	Pedal axle	35 Nm
Cassettes (HG)	Fixing ring	30 Nm
	Quick release:	see page 7

* We recommend the use of a plastic mounting paste under the components.

Tyres and tyre pressures

Observe any differing manufacturer's specifications.
The tyres and inner tubes could otherwise be damaged.

Conversion table PSI – Bar:

Tyre width in mm	***PSI***	***Bar***
25 HP(*)	80 – 110	5,5 – 7,6
28 HP(*)	70 – 80	4,8 – 5,5
28	60	4,1
32	60 – 70	4,1 – 4,8
37	50	3,5
40	60	4,1
42	60	4,1
47	40 – 50	3,5 – 4,1
57 – 62	30 – 40	2,1 – 2,8

(*) HP = high pressure tyres

Lighting system

Type	***Power supply***	
Headlamp, neon bulb	6 Volt	2,4 Watt
Headlamp, halogen	6 Volt	2,4 Watt HS3
Rear light with parking light	6 Volt	0,6 Watt
Rear light	6 Volt	0,6 Watt
Rear light, D-toplight plus	diode carrier rear light with LEDs (no bulb)	
Dynamo, right/left-hand	6 Volt	3 Watt
Hub dynamo	6 Volt	3 Watt

Warranty conditions

! Read the chapter „Care and maintenance of the bicycle", page 41, carefully and thoroughly. Comply with the specified inspection intervals listed in chapter "Regular inspections", page 43. Compliance with specified service intervals is a prerequisite in case of warranty claims.

You are legally entitled to a warranty of two years, starting from handover of the bicycle by the dealer, who is your contact person in case of a warranty claim.

As proof of the purchase or handover date, keep the handover note signed by both parties and the bill or receipt in a safe place for the duration of the warranty.

Prerequisites for warranty claims

- The damage is due to faulty manufacturing, material or information.
- The damage or fault was already present at the time of handover to the customer.

Exclusions from the warranty

A right to claim on the warranty exists only for the initial faults of defective parts. The following are excluded from the warranty:

- Damage caused by use in competition, improper use and acts of nature (see chapter "Appropriate use as intended", page 5).
- All parts which are subject to wear, except in the case of production or material faults (see chapter "Consumable parts", page 42).
- Damage caused by improper or insufficient care and unprofessional repairs, modifications or replacement of bicycle parts. Detailed care instructions are to be found in this operating manual.
- Damage due to accidents or external influences, provided these are not due to faulty information or production.
- Repairs with used parts or damage resulting from such repairs.
- Special equipment or accessories or non-standard equipment; especially technical alterations, such as replacement of gear shifter, bicycle fork, alteration of the frame geometry.
- Parts fitted later which, at the time of handover, did not belong to the standard equipment of the product, or damage resulting from the unprofessional assembly of such parts.

We wish you lots of pleasure riding your new bicycle!

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